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Bulletin
MASSACHUSETTS STATE COLLEGE

CATALOGUE NUMBER

1937-1938

Bulletin

MASSACHUSETTS STATE COLLEGE

Catalogue of the College

1937-38

Amherst, Massachusetts

VOLUME XXX JANUARY, 1938 NUMBER 1

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FOREWORD.

This bulletin presents the catalogue of the College for the sessions of 1937-38 and announcements concerning courses, admission, etc., for the sessions of 1938-39.

The College reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue.

LEGISLATION PERTAINING TO THE COLLEGE.

Without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life. — *Act of Congress, July 2, 1862.*

The College Charter. — "The leading object of the college shall be to teach subjects relating to agriculture and the mechanic arts, so as to promote liberal and practical education. Its curriculum may include other scientific and classical studies and shall include military tactics." — *From Chapter 75 of the General Laws of Massachusetts.*

The College Catalogue for the sessions of 1937-38 is part of the Seventy-fifth Annual Report of Massachusetts State College and as such is part II of Public Document 31. (Sec. 8, Chapter 75, of the General Laws of Massachusetts.)

The announcements concerning admission, courses and general information apply to the sessions of 1938-39.

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THE TRUSTEES.

Organization of 1937.

MEMBERS OF THE BOARD.

	TERM EXPIRES
MRS. LENA EDGE WILSON of Pittsfield	1938
HAROLD L. FROST of Arlington	1938
DAVID H. BUTTRICK of Arlington	1939
DAVID J. MALCOLM of Charlemont	1939
JOHN F. GANNON of Pittsfield	1940
DAVIS R. DEWEY of Cambridge	1940
JOSEPH W. BARTLETT of Boston	1941
PHILIP F. WHITMORE of Sunderland	1941
JOHN CHANDLER of Sterling Junction	1942
FREDERICK D. GRIGGS of Springfield	1942
NATHANIEL I. BOWDITCH of Framingham	1943
WILLIAM C. MONAHAN of Framingham	1943
MRS. ELIZABETH L. MCNAMARA of Cambridge	1944
JAMES T. CASSIDY of Dorchester	1944

MEMBERS EX OFFICIO.

His Excellency CHARLES F. HURLEY, *Governor of the Commonwealth.*
HUGH P. BAKER, *President of the College.*
JAMES G. REARDON, *Commission of Education*
WILLIAM CASEY, *Commissioner of Agriculture.*

OFFICERS OF THE BOARD OF TRUSTEES.

His Excellency CHARLES F. HURLEY of Boston, *President.*
NATHANIEL I. BOWDITCH of Framingham, *Vice-President.*
*ROBERT D. HAWLEY of Amherst, *Secretary.*
FRED C. KENNEY of Amherst, *Treasurer.*

OFFICERS OF COLLEGE ADMINISTRATION.

HUGH P. BAKER, D.Oec., LL.D., South College—President's House
President.
WILLIAM L. MACHMER, A.M., D.Ed., South College—25 Amity St.
Dean.
FRED C. KENNEY South College—8 Mount Pleasant
Treasurer.
FRED J. SIEVERS, M.S., East Experiment Station—35 Fearing St.
Director of the Experiment Station and Director of the Graduate School.
ROLAND H. VERBECK, B.S., South College—14 Orchard St.
Director of Short Courses.
WILLARD A. MUNSON, B.S., South College—101 Butterfield Ter.
Director of Extension Service.
*ROBERT D. HAWLEY, B.S., South College—Mt. Pleasant
Secretary.
BASIL B. WOOD, A.B., The Library—Amity St.
Librarian.
EMORY E. GRAYSON, B.S., South College—37 Cottage St.
Director of Placement.
JOHN K. BROADFOOT South College—130 Pleasant St.
Assistant Treasurer.
GUNNAR E. ERICKSON, B.S., C.P.A., South College—South Amherst
Business Officer.
GEORGE E. EMERY, B.S., Memorial Hall—29 East Pleasant St.
Field Secretary.
FRANCIS C. PRAY, M.S., South College—25 Fearing St.
Assistant College Editor.

* On leave of absence for one year.

CALENDAR.

1938

Jan. 24-Feb. 2, Monday-Wednesday	Final Examinations
Feb. 2, Wednesday, 5:00 P.M.	First Semester ends
Feb. 7, Monday, 8:00 A.M.	Second Semester begins
Feb. 22, Tuesday	Holiday, Washington's Birthday
Mar. 26-Apr. 4, Saturday, 12 M.-Monday, 8:00 A.M.	Spring Recess
Apr. 19, Tuesday	Holiday, Patriots' Day
May 30, Monday	Holiday, Memorial Day
June 1-10, Wednesday-Friday	Final Examinations
June 3-6, Friday-Monday	Stockbridge School Commencement
June 10, Friday	Second Semester closes
June 10-13, Friday-Monday	Commencement
June 16-18, Thursday-Saturday	Entrance Examinations
July 5-August 13	Summer School
Sept. 14-16, Wednesday-Friday	Entrance Examinations
Sept. 19, Monday	First Semester begins for Freshmen
Sept. 21, Wednesday, 2:00 P.M.	Opening Convocation
Sept. 22, Thursday, 8:00 A.M.	All class schedules start
Oct. 3, Monday	First Semester begins for Stockbridge School Freshmen
Oct. 4, Tuesday	First Semester beings for Stockbridge School Seniors
Oct. 12, Wednesday	Holiday, Columbus Day
Nov. 11, Friday	Holiday, Armistice Day
Nov. 23-Nov. 28, Wednesday, 12 M.-Monday, 8:00 A.M.	Thanksgiving Recess
Dec. 17-Jan. 3, Saturday, 12 M.-Tuesday, 8:00 A.M.	Christmas Recess

1939

Jan. 23-Feb. 1, Monday-Wednesday	Final Examinations
Feb. 1, Wednesday, 5:00 P.M.	First Semester ends
Feb. 6, Monday, 8:00 A.M.	Second Semester begins
Feb. 22, Wednesday	Holiday, Washington's Birthday
Apr. 1-10, Saturday, 12 M.-Monday, 8:00 A.M.	Easter Recess
Apr. 19, Wednesday	Patriots' Day
May 30, Tuesday	Memorial Day
May 31-June 9, Wednesday-Friday	Final Examinations
June 9, Friday	Second Semester closes
June 2-5, Friday-Monday	Stockbridge Commencement
June 9-12, Friday-Monday	Commencement
June 15-17, Thursday-Saturday	Entrance Examinations

Information Concerning the College

HISTORICAL SKETCH.

One of the outstanding achievements of the middle of the nineteenth century was the remarkable development in the field of science. This, in turn, brought about great changes in industry, transportation and agriculture and stimulated the desire for new information and further training. People were enthusiastic about the possibilities of the future. It is not surprising, therefore, that scientific courses gradually found their way into the academies and colleges. This was not without opposition from the friends of the old classical training, however. In many instances institutions founded along literary and philosophical lines did not favor the introduction of courses based on the needs of students desiring to perfect themselves in the technical principles and practices of the arts and industry. Nevertheless the demand for such courses increased. It was evident that the old order of education was changing but at the time the new was not apparent. It was under such conditions that the Massachusetts State College had its birth.

The Morrill Act.

This demand for technical education finally crystallized into a bill before Congress known as the Morrill Act of 1862 endowing colleges for this purpose in every state of the Union. The original bill was framed by Senator Justin L. Morrill of Vermont and its final enactment obtained under his leadership. The bill provided in each state for "the endowment for and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanics arts in such manner as the legislatures of the states may respectively prescribe in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Massachusetts accepted the provisions of the Morrill Act in 1863 by founding a new college at Amherst to be known as "Massachusetts Agricultural College" and Chapter 75 of the General Laws of the Commonwealth states that "the leading object of the College shall be to teach subjects relating to agriculture and the mechanics arts so as to promote liberal and practical education. Its curriculum may include other scientific and classical studies and shall include military tactics."

Founding and Early Growth of the College.

The Trustees of the Massachusetts Agricultural College were incorporated in 1863 and officers were appointed in that year. It was not until October 2, 1867, however, that the institution at Amherst was formally opened to students. At that time there were four teachers on the faculty and four wooden buildings on the campus. The number of students steadily increased during the first term and by December, 1867, forty-seven had been admitted. From this modest beginning the College has grown steadily and its influence has been felt in many parts of the world. On April 15, 1931, the name of the institution was changed by legislative enactment to Massachusetts State College.

Scope of the Institution.

In a sense, experimental work is as old as the institution, for even during its earliest years some very important investigations were carried on by the instructors. Research work was established as a separate unit, however, in 1882, when the State provided for the establishment of an agricultural experiment station here. In 1887 another experimental unit, the Hatch Experiment Station, was provided by Federal appropriation. These two stations were combined in 1895 and have since been known as the Massachusetts Agricultural Experiment Station.

State law also provides for the maintenance at this College of a Control Service the purpose of which is to regulate the sale of certain agricultural products for

the protection of purchasers and also to eliminate certain diseases of poultry.

The Extension Service of the College was established in 1912 and was first supported by grants of Federal Funds in 1914. This division of the College undertakes the large responsibility of teaching adults and boys and girls throughout the State, who cannot come to the College for instruction, better methods in agriculture and home-making.

Resident Instruction.

Opportunities for resident instruction have expanded greatly since the founding of the College in 1863. In addition to the four-year course leading to the Bachelor of Science degree, there are now offered such short courses as the Winter School, Summer School, and the two-year course in practical agriculture known as the Stockbridge School. The Graduate School offers opportunity for study for advanced degrees. The curriculum of the four-year course includes comprehensive courses in Agriculture, Home Economics, Horticulture, Humanities, Landscape Architecture, Physical and Biological Sciences, Physical Education and Social Sciences. The aim is to give to each student as high a degree of proficiency in some particular branch of learning as is possible without sacrificing the breadth of knowledge and training which should characterize the well-rounded college course.

THE COLLEGE CAMPUS.

Hand in hand with this steady growth of the College, there has come a marked expansion in physical equipment. The original farm of 1867, with its run-down fields and degenerated apple orchards cut up here and there by old Virginia rail fences and hedge rows has metamorphosed into one of the most attractive college campuses in New England. A brief statement of land, buildings and equipment will show to what extent the original four wooden buildings have been out-grown.

Location and Lands.

The State College is located in Amherst, a town of about six thousand people, overlooking one of the most picturesque sections of the Connecticut Valley. From the standpoint of teaching material in the field of science and agriculture, the location is ideal. Amherst is eight-eight miles from Boston and may be reached by the Central Vermont Railroad, or by bus connections from Northampton, Holyoke, Greenfield, and Springfield. The campus consists of a tract of approximately seven hundred acres, lying about a mile north of the village center. In addition the college owns another area of seven hundred and fifty-five acres located about six miles north of the campus on Mount Toby. This is used for a demonstration forest.

The College also operates a horticultural field station at Waltham and a cranberry field station at Wareham.

Buildings and Equipment.

The campus is laid out in the form of an oval attractively set off by the college pond in the center. Around this oval are grouped the main buildings of the college. In the following list the buildings are presented in order about this oval.

South College. — Here are located the administrative offices, including the offices of the President, Dean, Treasurer, Secretary, the Extension Service, Short Courses, Placement Service and Women's Adviser. The Department of Economics also has offices here. Erected 1885.

North College. — Primarily a freshman dormitory accommodating about seventy-five students. On the first floor is located the College Store and Barber Shop. Erected in 1868.

Flint Laboratory. — The work in Dairy Industry is carried on here. The building is well equipped with modern machinery for the production of market milk, ice-cream, butter and cheese. This building was erected in 1911 and was named in honor of Charles L. Flint, fourth president of the college. On the second floor is located the foods laboratory of the Department of Home Economics.

Stockbridge Hall. — Here are located the departments of Agricultural Economics and Farm Management, Agronomy, Animal Husbandry, Agricultural En-

gineering, Poultry Husbandry, and Education. In addition to the lecture rooms and offices are laboratories for soil fertility, field crops, poultry, and a drafting room for engineering. The clothing and house furnishing laboratories for the Home Economics Department are also located here. In the rear of the building are the greenhouse and head house used by the Department of Agronomy for work with crops and soils. A special reference library for the Division of Agriculture is on the second floor. Bowker Auditorium, the largest auditorium on the campus, is also in this building. It has a seating capacity of nine hundred and is named in honor of William H. Bowker, a member of the first graduating class, later a Trustee of the College, and one of the pioneers in the fertilizer industry. Stockbridge Hall was erected in 1914 and named in honor of Levi Stockbridge, a former president and professor of Agriculture in the college.

Horticultural Manufactures Laboratory. — Erected in 1929. Both research and instruction work in food preservation are carried on here. The laboratories are well equipped with modern apparatus used in this rapidly developing field.

Grinnell Arena. — Erected in 1910 primarily for livestock judging. An abattoir was constructed in 1930 as an addition to the original building. Named in honor of James S. Grinnell, for twenty-two years a trustee of the College.

Farley 4-H Building. — This building was constructed in 1933 as an assembly hall and general headquarters for 4-H Club activities upon the campus. The cost of the building was met by gifts from club members throughout the state.

Agricultural Engineering Laboratory. — Included in this laboratory for students of Agricultural Engineering are a carpenter shop, general repair shop, and a laboratory for farm machinery and motors. The building was erected in 1916.

Draper Hall. — This is the college dining hall. Service is cafeteria style and there are seating accommodations for about four hundred and fifty at one time. There is a small banquet room on the second floor and several dormitory rooms. Erected in 1903 with an addition in 1912, and named in honor of James Draper, for twenty years a Trustee of the College.

Goessmann Laboratory. — This is a modern chemical laboratory. The building is approximately two hundred feet by eighty feet and contains eight large laboratory rooms, an auditorium, a chemical library, and lecture rooms. The east wing of the third floor is occupied by the research professors of Chemistry of the Experiment Station. Goessmann Laboratory was erected in 1924 and named in honor of Charles A. Goessmann, the first professor of Chemistry at the College.

West Experiment Station. — The state control work is centralized here. Fertilizers, seeds, feeds and dairy glassware are analyzed or inspected in accordance with the state law, to determine whether or not they meet their guarantee. Erected in 1886.

East Experiment Station. — The office of the Director of the Experiment Station and other administrative offices of the Experiment Station are located in this building.

Abigail Adams House. — This is a modern girls' dormitory accommodating about one hundred students. It was erected in 1919 and named for Abigail Adams, a staunch believer in farm life, the wife of John Adams, second President of the United States. In the rear of the building is a recreation field for women students.

The Homestead. — Girls majoring in Home Economics receive their Home Management practice in the Homestead. It is a remodelled colonial farmhouse equipped with all the modern conveniences of the home.

Thatcher Hall. — This is a commodious dormitory for freshman men students, constructed in 1935. It contains library, recreation rooms and facilities for 150 students. It is named in honor of the late Roscoe W. Thatcher, tenth President of the College.

Marshall Laboratory. — This building, erected in 1915, is especially designed to carry on work in Physiology and in Bacteriology as it relates to soil, industry, dairying, foods and public health. There are four class laboratories, several private laboratory rooms and offices and a lecture room. In addition there are incubator rooms, sterilizing rooms, hood rooms, washing rooms, inoculating rooms, weighing rooms, an animal room, a photographic and dark room, and a sub-base-

ment refrigerator room. There is also a well-equipped library containing books and current periodicals useful in the conduct of bacteriological and physiological study. The building is named in honor of the late Dr. Charles E. Marshall, head of the Department of Microbiology from 1912 to 1927.

Infirmary. — The infirmary is composed of two small cottages and a large ward building all located on the hillside north-east of Marshall Laboratory. The facilities are specially designed for the care of sick and injured students. A trained nurse is on duty at all times.

Physics Building. — This is a wooden building erected in 1867. It contains a well-equipped laboratory for work in Physics and also one lecture room.

Wilder Hall. — Here are located the departments of Landscape Architecture and Horticulture. The building is chiefly devoted to classrooms, drafting rooms, and offices. It was erected in 1905 and named in honor of Marshall P. Wilder, a pioneer in the movement for agricultural education in Massachusetts and one of the first Trustees of the College.

Fisher Laboratory. — This is a well planned and equipped fruit packing and storage house. It includes six refrigerator rooms, four storage rooms not refrigerated, one large laboratory room, one class room, besides ample storage space for fruit packages and equipment. The equipment for the building itself includes four types of apple sizers, packing tables and box and barrel presses of various types, besides all kinds of smaller equipment necessary for thoroughly modern work in grading and packing fruit. This building is used by the Pomology Department and was named in honor of Jabez Fisher, one of the foremost early horticulturists of the State. Erected 1910.

French Hall. — French Hall houses the departments of Pomology, Floriculture, Forestry and Vegetable Gardening. The classroom work in Economics, Sociology, French and Spanish is also given here. Just to the rear of the building is the new Durfee range of greenhouses, devoted to the growing of carnations, roses, chrysanthemums, sweet peas, etc. One house is maintained as a conservatory and contains a collection of plants used primarily for decorative purposes. Two houses are devoted to greenhouse vegetables. The old Durfee range located just to the north of French Hall is used chiefly for the growing and maintenance of a collection of conservatory plants. There are also many of economic value such as the bamboo, camphor tree, guava, palm, etc. French Hall was erected in two sections; the first in 1908, the second in 1913. It was named in honor of Henry F. French, the first President of the College.

Clark Hall. — Here are located the offices, lecture rooms and laboratories of the Department of Botany. In addition to the main building, there is a greenhouse used for research and laboratory purposes. The herbarium contains about twenty thousand sheets of seed plants and ferns, twelve hundred sheets of liverworts and mosses and a collection of twenty-five thousand specimens of fungi. Erected in 1906 and named in honor of William S. Clark, President of the College 1867-1879.

Fernald Hall. — This building, erected in 1909, was named in honor of Professor Charles H. Fernald, who served the College for twenty-four years, built up a strong department in Zoölogy, created the department of Entomology, and acted as Director of the Graduate School. Fernald Hall houses the Department of Entomology, Zoölogy and Geology. In addition to laboratories, lecture rooms, and offices, there is a Geological Museum, a Zoölogical Museum and a collection of over 160,000 insects. Material in these collections is available for study and for exhibition purposes.

Mathematics Building. — This building contains classrooms for instruction in mathematics and surveying. There is also a well equipped drafting room, and a small one devoted to blue-printing.

Paige Laboratory. — The work in Veterinary Science is located in this building. In addition to the class, lecture, and laboratory rooms, there are the laboratories for Research work on animal diseases and Control Service in Poultry Disease Elimination. The museum contains a growing number of anatomical and pathological specimens, most of which are used for teaching purposes. In the rear of

the building are the stables for housing both laboratory and larger animals under isolation conditions for dissection, post mortem examinations and for incineration purposes. Paige Laboratory was erected in 1898 and named for James B. Paige, professor of Veterinary Science from 1891 to 1922.

Physical Education Building. — This building, dedicated at Commencement in 1931, offers splendid modern facilities for physical education, including a swimming pool 75 by 30 feet, an exercise hall 150 by 180 feet, locker rooms, baths, and other modern facilities. Of the total cost of $287,000, alumni and friends of the College contributed $115,000; the remainder was appropriated by the State Legislature.

Alumni Field. — This tract of land was transformed into an Athletic Field, containing a baseball diamond, football field, and cinder track, by the alumni and friends of the college. Completed 1915, extended in 1935.

Drill Hall. — This building houses the Department of Military Science and the Department of Physical Education for Women. It contains armory, offices and classrooms for the former and locker and dressing rooms and large exercise hall for the latter.

Women's Athletic Field. — This field was constructed as a W.P.A. project and completed in 1936. It affords excellent outdoor facilities for athletics for women students and is conveniently located just west of the indoor headquarters.

Memorial Hall. — The social center of student life is Memorial Hall. It was erected by the alumni, students, faculty and friends of the College in memory of those men of this College who died in the World War. In the basement are bowling alleys, pool tables, and game rooms. On the main floor are eight offices for the leaders of various student activities, a large reading room and lounge and a beautiful Memorial Room in which is a tablet bearing the names of the sons of the college who gave their lives in the Great War. On the second floor is an auditorium seating 350 persons. This room is also used for college dances. Memorial Hall was erected in 1921.

Old Chapel. — This building has been reconstructed as a P.W.A. project to provide classrooms, offices and a small auditorium for the use of the Division of Social Sciences. The building formerly served as the College library and at one time as both library and chapel. It is a fine granite structure erected in 1885.

Goodell Library. — This fine new building completed in 1935 houses the College Library. This library contains one of the best collections in agriculture and related sciences in the country, with especial strength in entomology, botany, chemistry, horticulture, landscape architecture, soil science, and animal husbandry, but with considerable collections, also, in literature, history, economics, and sociology. There are more than 100,000 bound books, and 50,000 classified pamphlets giving most recent information. The periodical file contains more than 550 current magazines, both scientific and popular, and a careful selection of newspapers, together with many periodical publications of learned societies. The Library is unusually rich in files of journals and proceedings of Experiment Stations and learned societies. The building is open on week days from 8 A.M. to 10 P.M. and from 1.30 to 4.30 and 7 to 9 P.M. on Sundays during semesters and with somewhat shorter hours during vacations and Summer School.

The building is named in memory of Henry Hill Goodell, President of the College from 1886 to 1904 and College Librarian from 1886 to 1898.

Power Plant. — Heat and light are supplied to all the buildings on the campus from a central power plant. This was erected in 1902 and has been subsequently remodeled.

Farm Buildings, Land and Equipment.

College Farm and Barns. — The college farm consists of 240 acres located just west of South College. Most of it is suitable for cultivation and is operated in regular rotation. Much of the farm as it now stands has been made productive by tile draining and clearing the land of brush and stumps. The principal crops raised are those which can be utilized by the livestock. For instructional work the farm is available for study in field crops, planning of crop rotation, practical field operation of farm machinery and tractors and farm management. The live-

stock of the farm consists of about 175 head of registered cattle which are excellent representatives of the Ayrshire, Guernsey, Holstein, Jersey, Milking Shorthorns, and Hereford breeds, a considerable number of registered Chester White swine, a flock of about 100 Shropshire and Southdown sheep and 25 Percheron horses. These animals are used chiefly for demonstrational and instructional work in feeding and herd management and in the teaching of correct types by much practice in judging. The farm buildings are model structures for their various purposes. They were erected in 1909 and subsequently. The dairy barns contain efficient and modern equipment for their respective purposes. The sheep barns and piggery are located several hundred yards from the dairy barns.

Cavalry Stable. — This stable has a capacity for the sixty horses which are used by the college cavalry troops. Erected in 1925.

Poultry Plant. — The college poultry plant consists of about eight acres of land and the necessary buildings that go to make up a modern college poultry laboratory. This land and an equal area on the college farm permit a three-year rotation for growing stock. The plant will accommodate 2,000 laying birds and has growing facilities for about 7,000 chicks. The incubator capacity of the plant is approximately 12,000 eggs at one time. Located about one-half mile east of the college, on East Pleasant Street, is the experimental poultry farm which accommodates about 1,200 adult birds and has hatching facilities for about 6,000 eggs. Here experiments on breeding poultry for egg production and disease control are carried on under strict quarantine.

Nutrition Laboratory. — This building was formerly the Hatch Barn used for experimental work in the feeding of livestock, and in it many valuable discoveries were made. Progress, however, had reached the stage where, because of the influence of a more artificial environment and a less natural food supply, it became necessary to intensify the former feeding programs. To meet this requirement this building has been remodeled for the accommodation of the small animals necessary for investigational work in this field. This structure, in its modernized form, provides good facilities for investigation in the field of nutrition, both human and animal.

Experiment Station Barns. — These buildings contain the equipment and animals used in connection with the work of the Experiment Station.

Orchards and Vineyards. — The college orchard contains about 20 varieties of peaches, 25 of plums, 20 of pears, and 100 of apples. Common varieties of grapes are grown in the vineyard and with the various approved trellis systems. These orchards are used for teaching material in Pomology.

Vegetable Gardens. — Here are grown the class materials used by the vegetable gardening department.

Mt. Toby Demonstration Forest. — This is an area of approximately 750 acres located on Mt. Toby. It contains the various types of forest growth found throughout the State. It serves as a field laboratory in Forestry and Wild Life Management. Students have the privilege of working out problems in silviculture, forest mensuration and management. Improvement cuttings, cutting for utilization and forest planning are conducted here also.

COURSES OF INSTRUCTION.

Courses Leading to a Degree.

Four-Year Course. — The degree of Bachelor of Science is granted to those students who satisfactorily complete the regular four-year course. Special arrangement is made for some graduates of county agricultural schools to receive the degree of Bachelor of Vocational Agriculture for four years of college work.

Five-Year Course in Landscape Architecture. — A five-year course is offered in Landscape Architecture leading to the degree of Bachelor of Landscape Architecture.

Graduate School. — The degrees of Master of Science, Master of Landscape Architecture and Doctor of Philosophy may be granted upon the completion of satisfactory study, research and a thesis.

Summer School. — Both graduate and undergraduate courses are offered in the

six weeks' summer school and credits earned may apply toward the Bachelor's degree or advanced degrees.

Non-Degree Courses.

Several short courses in agriculture are offered which do not lead to a degree. These are for the benefit of those who are not prepared to take the degree course or who desire only a practical training in modern agriculture methods.

Stockbridge School of Agriculture. — This is a two-year course in practical agriculture offering a high type of training to those who wish to enter some special agricultural enterpise. A separate descriptive catalogue will be sent on request.

Winter School. — A ten weeks' practical course in agricultural and horticultural subjects begins about January first each year. The courses are so arranged that a student may choose such subjects as will enable him to specialize in the line of work in which he is most interested.

HEALTH SERVICE.

The College endeavors to safeguard the health of all students while on the campus and for this purpose maintains a Department of Student Health, staffed by two physicians, two resident registered nurses and a group of three Infirmary buildings.

(1) Physical examination by the Health Service is required annually of all undergraduate students, or more often if indicated. This examination is given to freshmen during matriculation week. Evidence of a SUCCESSFUL smallpox vaccination is required.

(2) The Student Health physicians have offices in the Physical Education Building and in the Out-Patient Infirmary Building, where they may be consulted during college hours.

(3) The Infirmary consists of 3 buildings, one for bed patients, one for contagious cases, and one for out-patient cases, where the out-patient clinic is conducted daily by one of the Student Health physicians.

(4) The students are urged to consult the resident physicians at the first sign of physical disorder, or even for minor accidents. Many severe illnesses and much lost time can be avoided by early or preventive treatment.

(5) No charge is made to Infirmary bed patients for the first seven days in the school year; time in excess of seven (7) days will be charged at the rate of $2 per day. A nominal charge may be made to out-patients for miscellaneous treatments.

(6) In addition to the fee charged as specified in paragraph 5, the following additional expenses will be charged to the patient.

(a) *Nurses.* — In case a special nurse is required for the proper care of an individual the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the resident nurse.

(b) *Professional Service.* — If a student requires continuous medical attention by a physician, he may be required to select a town physician and become responsible for fees charged by that physician.

(c) *Supplies.* — Special medical supplies prescribed by a physician will be charged to the patient.

(d) *Laundry.* — Expenses for personal laundry incurred by students while in the Infirmary will be charged to the individual student.

STUDENT EXPENSES.

Student college expenses vary from approximately $450 per year to $600 for the normal economical student. First year expenses are usually greater than those of the other three years and there is less opportunity in this year to earn. It is, therefore, recommended to the entering student that he have available at least $450 with which to meet the expenses of the first year. Women students are recommended to plan on a minimum expense of $550.

The following summary of a year's expenses includes only those items which are strictly college costs and does not include amounts for clothing, travel, etc.,

which vary with the individual. Tuition for residents of Massachusetts is $100 and for others $220.

	Low	*Normal*
Tuition (citizens of Massachusetts)	$100.00	$100.00
Room in college dormitory or in private house	70.00	140.00
Board, $6.50 per week (College Dining Hall)	221.00	221.00
Laundry, 50 to 85 cents a week	18.00	30.00
Books, stationery and miscellaneous items	60.00	90.00
Student Taxes	25.00	25.00
	$494.00	$606.00

Inital Payment for Freshmen.

The initial payment required of freshmen at the time of fall registration is approximately $190 and is made up of the following items:

Tuition (citizens of Massachusetts)	$50.00
Room rent (dormitory)	50.00
Board (College Dining Hall to Dec. 1) (Approx.)	60.00
Military Uniform	20.00
*Student Tax	13.00
	$193.00

Graduation Requirements.

No student will be graduated unless all bills due the college are paid on or before the Wednesday preceding the graduation exercise. If paid after that date and otherwise eligible he may graduate the following year.

Diplomas and letters of honorable dismissal will be withheld from all students who have not paid bills due the college or legitimate bills for room rent due fraternities or private individuals.

Advance Payment.

Prospective new students will be expected to make an advance payment of $15 to the Treasurer of the College as soon as they are notified by the Dean that they are accepted for admission. This will be considered as first payment on registration fees which will be due at time of matriculation in September and will be returned to the student if he advises the College before August 20 that he will not present himself for admission. If the student fails to notify the College of withdrawal before that date this preliminary payment will be forfeited and will be considered payment for the expenses invloved in preliminary admission arrangements.

Refunds.

A student who leaves college for any reason before a semester is half completed will have refunded to him one-half the fees paid for that semester, but one who leaves after a semester is half over will be allowed no rebate of fees and a refund of only unused board and room charges.

College Fees.

All students are required to pay the College fees at the Treasurer's Office and file their registration cards in the Dean's Office within one week after the opening of College. Fee for late registration, $1.00.

Tuition. — Residents of Massachusetts are charged a tuition fee of $100 per year, payable in advance in two instalments of $50 each on the first day of each semester. For those who are not residents of Massachusetts, the tuition fee is $220 per year. Students entering from Massachusetts are required to file with the Treasurer a statement signed by town or city clerk, stating that the applicant's father or legal guardian is a legal resident of Massachusetts, unless applicant himself is of legal age, in which case a similar statement must be filed indicating his own legal residence. Where the guardian is certifying to this statement, it will be necessary for him to furnish a copy of his appointment by the court.

* This tax is for the support of student activities and entitles each student to free participation in the various enterprises represented.

Military Uniform. — All students taking military drill are required to make a deposit of $20.00 for the uniform. A rebate of this amount is made when the uniform is returned. Shoes are also furnished at approximately $4.25 per pair.

Board. — All freshmen students and all residents of college dormitories are required to board at the college dining hall. However, upper-class men, residents of dormitories, may board off-campus but only in approved dining halls which are under faculty supervision. Service is on a cafeteria basis and students pay in advance at the rate of approximately $6.50 per week, as follows:

At the opening of college	$60.00
At December 1	46.05
At the beginning of second semester	44.20
Upon return from spring recess	61.35

For absences of one week or more rebates at the rate of $5.50 per week may be granted provided the absence is authorized by the Dean and the rebate approved by the Treasurer. No rebates will be allowed for absences of less than one week.

If a student's home is nearby and for this or any similar reason he is regularly absent from the campus over week ends, upon request from his parent or guardian, approved by the Dean of the College, he may board in the college dining hall for a five-day week (fifteen consecutive meals beginning with Monday breakfast) at the rate of 80 per cent of that paid for a seven-day week.

Excuses from compliance with these regulations concerning board shall be made only by the Treasurer of the College, who may require a recommendation in individual cases from the Student Health Officer, if the excuse is requested for health reasons, or from the Dean if the reason has to do with the student's academic opportunities.

Rooms.

1. It is the policy of the Board of Trustees that freshman men students and all women students in the four-year course shall be housed in campus dormitories in so far as accommodations are available.
2. Since sufficient dormitory accommodations for all of these students are not available at the present time, the following procedure will be followed to the end that those which we do have will be used to capacity and that assignments will be made with justice to all concerned.
3. Dormitories will not be opened until the Saturday preceding the opening of College.

Women Students.

a. All freshman girls will be assigned rooms in campus dormitories. The Adviser of Women may excuse any at her discretion for the reasons that they wish to live at home or that they have opportunity to earn board and room in a private residence.

b. All sophomore girls will live in campus dormitories to the extent that accommodations are available unless excused by the Adviser of Women.

c. Upper-class girls may live in campus dormitories if accommodations are available and their wishes should take precedence over the sophomore requirement. Their selection of rooms will be by lot under the supervision of the Adviser of Women.

d. At the close of each college year all sophomore girls will draw lots for dormitory rooms for the next year. Assignments to rooms will be made in accordance with the sequence fixed by this draw. As vacancies occur during the year, the Adviser of Women will assign these vacated rooms to sophomore girls in accordance with this sequence and any student thus assigned to a dormitory room must take up residence there within two weeks after receipt of notice.

e. It is expected that not more than one sophomore girl from any one sorority will be assigned dormitory room in any single year under the provisions of "d."

f. Dormitory accommodations are available for about one hundred and twenty women students in the Abigail Adams House and Draper Hall. These

rooms are furnished except for necessary bedding or linen and are cared for by the students occupying them. A list of approved off-campus rooms is kept by the Adviser of Women.

Men Students.

a. Assignment of rooms for men students is in charge of the Assistant Dean.

b. Upper-class men usually obtain rooms in fraternity houses or in private homes near the campus. Rent usually ranges from $2.50 to $4.00 per week, depending upon location and nature of the room. Such rooms are usually furnished.

Students desiring aid in obtaining off-campus rooms should write to the Assistant to the Dean. The College does not secure these rooms for students but does keep a desirable list for student aid.

c. All freshman men students, unless granted permission to commute, will be required to room in college dormitories.

d. Dormitory accommodations are available at North College and Thatcher Hall. The rooms are furnished except for necessary bedding and linen. They are cared for by the students who occupy them.

3. The general supervision of housing of students is in charge of the Faculty Committee on Housing.

Student Aid.

Students desiring any form of financial aid from the college including scholarship, employment, or loan are required to file applications with the Student Aid Committee not later than June 10 of each year. Incoming freshmen are allowed an extension of time.

These application forms are used to determine the comparative need of the applicants and are passed on by the Student Aid Committee. No student is eligible for any kind of financial assistance from the College unless he or she has filed the required form and has been certified as deserving by the Student Aid Committee. Application forms may be secured at the Placement Service Office, South College.

STUDENT EMPLOYMENT.

The College affords opportunity for part-time employment for a limited number of needy students. The number of applicants usually far exceeds the number of positions open so that no guarantee can be made that a student will find employment through the College. The College Placement Service renders every possible assistance to deserving students in search of employment. Besides such opportunities on the campus as waiters and kitchen helpers at the dining hall, janitors for buildings, assistants on the farm and in college laboratories, there are some opportunities in private homes and businesses in the town.

Prospective students are cautioned not to depend too much upon their earning capacity in the first year. This year is the most difficult to finance for two reasons. This is the student's first experience with college work and the usual result is that more time is required for study and less is therefore available for work. In this year also, since it is the first, the student is less familiar with his surroundings and not so able to locate work. Upperclassmen usually have most of the available jobs before the freshmen get acclimated. Students who are planning to enter College for the first time therefore are advised that they should have at least $450 available with which to meet the expenses of the first year. Some students stay out of school for a year after graduating from high school in order to work and save this amount.

N.Y.A. STUDENT EMPLOYMENT PROJECTS.

The College has been granted student employment funds by the Federal Government since the adoption of the program. The policy of the Federal Administration cannot be predicted, but it is safe to assume that as long as student relief projects are in effect this College will be a participant. The type of work to which students are assigned under N.Y.A. projects consists of the following: Clerical and office, library and museum, laboratory and research assistance, reading and grading papers and all other or miscellaneous types.

In addition to the college projects, community projects are organized consisting of the following types of work: Education, recreation, health and welfare and other miscellaneous types.

The rate of pay is 30 cents per hour. The positions are based on the average earning capacity of $15.00 per month. During the past college year twelve percent of our students were assigned to positions under this project.

Special consideration is given to new students under these projects, for while the general college policy does not encourage the new student to seek employment, one of the conditions under which the College participates in N.Y.A. projects is that new students receive their pro rata share.

SCHOLARSHIPS.

Scholarships are awarded only to needy students of high character, whose habits of life are economical and who have maintained an average of at least 70% in their college course during the preceding year. Scholarships from the Crane and Ward Funds may be granted to applicants for admission to the College provided they are candidates for a degree, are in need of financial assistance and are able to meet the entrance requirements in full. Complete information relative to the student's need for financial aid must be presented before any application can be acted upon. Scholarships are paid in installments at the beginning of each semester in the form of a credit on the student's bill. A scholarship may be discontinued at the close of any semester if the scholastic record of the recipient is unsatisfactory.

Blanks for applying for a scholarship may be obtained from the Dean of the College. Applicants from the three upper classes must file at the Dean's Office before the close of the college year an account of their income and expenses for that college year together with a statement of their resources for the coming year.

Scholarship funds available this year include the following:

Alvord Dairy Scholarship Fund. A fund of $4,000 received in 1906 by a bequest of Henry E. Alvord. Income used to support a student making a specialty of the study of Dairy Husbandry with the intention of being an investigator, teacher or special practitioner in connection with the dairy industry.

Frederick G. Crane Fund. Gift of Rose P. Crane, Frederick G. Crane, Jr., and Rosemary Crane of Dalton, in 1924, to establish a fund of $25,000 in memory of Frederick G. Crane of Dalton, Mass. Income to be used to aid worthy undergraduate students, preference being given to residents of Berkshire County.

Gassett Scholarship Fund. Fund of $1,500 from Henry Gassett of Boston, Mass., in 1886. Income to be used for general scholarships.

Charles A. Gleason Fund. Bequest of $5,000 from Charles A. Gleason of North Brookfield, Mass., in 1926. Income to be used for general scholarships.

Clarence C. Hardy Scholarship Fund. Bequest of Clarence C. Hardy of Groveland, Mass., in 1934. Income to be used to provide scholarships for needy and worthy young men and women, preference given to graduates of Groveland High School. Amount of fund, $82.49. Not used at the present time.

Porter L. Newton Fund. Fund of $23,411.33 being a gift of Porter L. Newton of Waltham, Mass., in 1926. Income to be used as scholarships for worthy and deserving students being educated along agricultural lines.

Betsey C. Pinkerton Fund. Bequest of $4,500 from Betsey C. Pinkerton, Worcester, Mass., in 1935 to create two general scholarships to two pupils of the schools of Worcester, either boys or girls.

Mary Robinson Fund. Bequest of $1,000 from Mary Robinson of Medfield, Mass., in 1874, income to be used for scholarships for worthy students. Not used at the present time.

Whiting Street Scholarship Fund. Fund of $2,000 by will of Whiting Street of Northampton, Mass., in 1879, income to be used for scholarships for needy students as the faculty may direct.

Helen A. Whittier Scholarship Fund. Fund of $3,193.45 established by Massachusetts State Federation of Women's Clubs in 1929, income to be used as a scholarship in Art as applied to living, as a memorial to Miss Helen A. Whittier. This is for women students only.

J. D. W. French Fund. Gift of the Bay State Agricultural Society in 1923, $10,000. Income to be used to defray expenses of judging teams to national dairy and livestock shows, and also for scholarships, loans and prizes in Dairying and Forestry.

Garden Club Federation of Massachusetts Founder Scholarship in Honor of Margaret F. Motley. One scholarship of $100 for an upperclass student studying Horticulture, Landscape Architecture, or Floriculture.

Hood Dairy Scholarship Fund. Donated each year by Dr. Charles H. Hood of Boston to aid boys whose plan is to engage in the practical side of dairy farming. The $200 available may be awarded to freshmen, sophomores, juniors and seniors. Sometimes this amount is awarded to one student and sometimes it is broken up into two or even four scholarships.

There are also the following special scholarships:

Cotting Memorial Scholarship, — all college expenses of freshman year — for woman student.

Wilbur H. H. Ward Scholarships, —

Twenty-five scholarships of approximately $100 known as the Wilbur H. H. Ward Scholarships. The Wilbur H. H. Ward Fund is administered by a Board of Trustees independent of the College. Applicants for these scholarships should write to Mr. Sumner R. Parker, who may be addressed at the College. They are available only to Hampshire County boys.

Women's Student Government Association Scholarship of $50. An award by the Women's Student Government Association to a young women student at the end of her junior year. The basis of award considers character and personality, scholastic achievement, campus influence and service.

LOANS.

Loans may be granted to needy students requiring some assistance in meeting the expenses of the college course. All such loans must be paid before graduation. The student must present a properly endorsed note at the time a loan is made. With the exception of loans from the Lotta Agricultural Fund, money thus loaned is at a low rate of interest until the student graduates or severs his connections with the College. Applications for a loan should be made at the Treasurer's Office.

These loans are made available through the income from the following funds:

Danforth Keyes Bangs Fund. — This is a gift of $6,000 from Louisa A. Baker of Amherst, the income of which is to be used annually in aiding poor, industrious and deserving students to obtain an education in the Massachusetts State College.

Lotta Agricultural Fund. — A limited number of loans are made to students from the income of this fund. Such loans are made without interest but only to deserving students of high scholastic rank. This fund is administered by a Board of Trustees independent of the College although loans are made only upon the recommendation of the President of the College.

Massachusetts Agricultural Club Fund. — The Massachusetts Agricultural Club has given $500 to be used as a loan fund at the Massachusetts State College to help deserving students there who intend to go into agricultural work.

4-H Club Loan Fund for Boys. — A loan fund of $1,000.

4-H Club Loan Fund for Girls. — A loan fund of $100.

Vincent Goldthwait Memorial Loan Fund. — A gift of $5,000 from Dr. Joel E. Goldthwait in memory of his son.

SCHOLARSHIP HONORS AND AWARDS.

Dean's Scholarship Groups. — At the beginning of each semester a list is posted of those students who during the previous semester made a general average of 80 per cent or better. Three groups are recognized: those between 90 and 100; those between 85 and 90; and those between 80 and 85. Sophomores, Juniors and Seniors in the first two groups are allowed considerable freedom in the matter of class attendance.

Departmental Honors. — A student who has shown outstanding promise within

some department and has maintained a general scholastic average of 80 per cent or better is permitted to apply for the privilege of registering for departmental honors. If his application is accepted by his department and the Honors Committee, he is allowed to pursue a course of independent study within the department of his choice throughout his senior year. This may include intensive reading, investigation or laboratory work in connection with some problem that he chooses for his consideration. The objective is to create on the part of the student initiative, the power of independent investigation and to develop in him the spirit of research. Although the student is responsible for his undertaking he is encouraged to consult with his department in regard to his work should the need arise. At the close of his study the student presents a thesis covering his investigation. In addition he may be required to appear for an oral or written examination. If by the excellence of his work he satisfies all the requirements of his department and the Honors Committee his name will appear on the commencement program as receiving honors in the field of his specialization.

Phi Kappa Phi Elections. — Those members of the senior class whose scholarship average has been 85 or above are eligible for election to the Honorary Scholarship Society of Phi Kappa Phi. Not more than 15 per cent of the class can be elected, however.

Scholastic Prizes.

Phi Kappa Phi Award for Scholarship. — Massachusetts Chapter of the Phi Kappa Phi Honorary Scholarship Society offers an award of $50 for outstanding work in scholarship. This is given to some member of the Senior class at the opening of college in the fall. The award is based on the record of the first three years.

The Grinnell Prizes. — Given by the Hon. William Claflin of Boston, in honor of George B. Grinnell, Esq., of New York, for excellence in theoretical and practical agriculture. The contest is open to those senior students whose records on the registrar's books show an average standing of 80 or above for the technical work taken in the Divisions of Agriculture and Horticulture during the junior and senior years. There are three prizes of $25, $15, and $10.

The Burnham Prizes. — There were made possible through the generosity of Mr. T. O. H. P. Burnham of Boston. Prizes of $15 and $10 are awarded to those students delivering the best and second best declamations in the Burnham contest. The preliminary contests are open under certain restrictions to freshmen and sophomores.

The Flint Prizes. — The Flint Oratorical Contest was established in 1881 by a gift of the late Charles L. Flint, a former president of the college. After his death the prizes were continued by college appropriation. Prizes of $30 and $15 are awarded as first and second prizes to those two students delivering the best orations in this contest.

The Hills Botanical Prize. — This is given through the generosity of Henry F. Hills of Amherst, for the first and second best herbaria. Competition is open to members of the senior, junior and sophomore classes. First prize $20, second prize $15.

The Betty Steinbugler Prize in English. — This prize was endowed by John L. Steinbugler, New York City, in honor of his daughter Elizabeth Steinbugler Robertson, a graduate of this College in the Class of 1929. It is awarded annually to a woman in the junior or senior class who has written the best long paper on a subject of literary investigation in a course in English during the year.

ATHLETIC AND ACADEMICS PRIZES.

The Allan Leon Pond Memorial Medal. — This medal is awarded for general excellence in football in memory of Allan Leon Pond of the Class of 1920, who died February 26, 1920. He was a congenial companion, a devoted lover of Alma Mater, a veteran of the Great War, a fine all-round athlete and a true amateur. He would rather win than lose, but he would rather play fair than win. He has been characterized as a typical student of this College.

The Southern Alumni Baseball Cup. — This cup is awarded to that member

of the baseball team who contributes most to the success and reputation of the team, both in respect to skill and spirit.

The Thomas E. Minkstein Memorial Award. — This award is made by the Class of 1931 in memory of their classmate who died July 16, 1930, while he was captain-elect of football. The award is given to one of the outstanding men in the Junior Class who has as nearly as possible attained those standards of athletics, scholarship and leadership set by him whose memory this award honors.

The George Henry Richards Memorial Cup. — This cup is awarded annually to the member of the basketball team who shows the greatest improvement in leadership, sportsmanship, and individual and team play during the season. It is in memory of George Henry Richards of the Class of 1921 who died suddenly while a student at the College.

The Joseph Lojko Memorial Plaque. — This plaque is presented to a senior who must be a letter man, have a satisfactory scholastic record and show those qualities of enthusiasm and cooperation which make for leadership. An award in honor of Joseph Lojko of the Class of 1934, outstanding athlete who died while a senior in the College.

Academics Conspicuous Service Trophy. — This trophy is awarded annually to that student who has made the most important, single contribution to the Academic Activities during the year.

Academics Managers' Prize. — Fifty dollars in gold awarded annually to that Academics manager who fulfills his duties most efficiently.

Poetry Prizes. — Fifteen and ten dollar prizes are awarded to the authors of the best poems published in the *Collegian* during the year.

STUDENT ACTIVITIES AND ORGANIZATIONS.

No small part of the value received from four years of college is the training that one acquires through participation in student activities. Student organizations offer excellent opportunities for leadership in a wide variety of fields.

Student Government.

The Senate. — This is a student governing council. It is composed of representatives elected from the Junior and Senior classes. Besides acting as general director of undergraduate conduct it represents the interests of the students and the student body before the Faculty.

Adelphia. — This is a senior honorary society. The members are usually chosen from those who have been prominent in college activities. The society attempts in a quiet, unassuming way to mold student life on the campus.

The Honor Council. — The Honor System prevails at this college. The foreword of the Honor System reads as follows: "We, the students of the Massachusetts State College, believe that the goal of education is character. The man of character deals fairly with himself, and with others, and would rather suffer failure than stoop to fraud. The Honor System stands for this attitude in all relations of the students with the Faculty. In expression of our belief we pledge ourselves to the support of the constitution of the Honor System." Matters pertaining to the Honor System are in direct charge of the Student Honor Council, consisting of members elected from the four classes.

The Women's Student Council. — All appropriate matters pertaining to the conduct of women students are under the control of this council. It is composed of members selected from the senior, junior, and sophomore classes by all the women students.

Academic Activities.

The College Musical Clubs include an orchestra, a band, and a glee club. These make various public appearances during the year.

The Dramatic Club, the Roister Doisters, presents annually a revue and two plays, one in the winter, and the other at Commencement. There is a Debating Society which conducts both class and intercollegiate debates for both men and women. All academic activities are supervised by the Academic Activities Board composed of alumni, faculty, and students, and find recognition in semi-annual award of gold and silver medals.

"The Massachusetts Collegian" is a weekly newspaper, published by the undergraduates of the college.

"The Index" is the college yearbook published by the members of the Junior class.

College Fraternities and Sororities.

There are several national and local fraternities represented on the campus. Rushing rules and general matters dealing with fraternity life are in charge of the Inter-fraternity Conference. This conference awards scholarships, a baseball cup, and a relay plaque to the winners of the Inter-fraternity Contests.

There are several local sororities and an Inter-sorority Conference which deals with affairs of interest to all of the societies.

Inter-Collegiate Athletics.

The College is represented in inter-collegiate athletics by teams in all the leading sports, including football, baseball, track, hockey, soccer, swimming and basketball. General policies governing athletics are in charge of the Athletic Board, composed of Alumni, Faculty, and students.

Professional Clubs.

There are several professional clubs established in connection with the various major courses of study. These clubs stimulate the students' professional interest in their chosen subject-matter fields and afford opportunity for discussion of technical subjects of mutual interest.

Religious Organizations.

Four religious organizations are active on the Campus: The Christian Federation, the Menorah Club (for Jewish students), the Newman Club (for Catholic students), and the Stockbridge Y (for two-year students). These four organizations unite in forming a Student Religious Council which strives both to further amity among the religious faiths and to promote religious activities and thinking in the student body. These various religious organizations are sponsored by a Faculty Committee on Religious Work and are under the supervision of the Director of Religious Education. The College conducts a vesper service on each Sunday at five o'clock during the school year at which some of the great religious leaders of our country speak.

The Social Union.

The Social Union was established in 1907. All students become members of the Union in consideration of a small part of the Student Activities Fee. In the fall and winter months the Union gives a series of entertainments.

STANDARDS OF DEPORTMENT.

The customary high standard of college men and women in honor, self-respect and consideration for the rights of others constitutes the standards of student deportment.

The privileges of the College may be withdrawn from any student at any time, if such action is deemed advisable.

It should be understood that the College, acting through its President or any administrative officer designated by him, distinctly reserves the right, not only to suspend or dismiss students, but also to name conditions under which students may remain in the institution. For example, if a student is not doing creditable work he may not only be disciplined but he may also be required to meet certain prescribed conditions in respect to his studies, even though under the foregoing rules his status as a student be not affected. The same provision applies equally to the matter of absences ("cuts"). According to the rules, juniors and seniors are allowed a certain percentage of absences from class and other exercises. This permission, which implies a privilege and not a right, may be withdrawn at any time for any cause.

Similarly, also, it applies to participation in student activities. Though this will ordinarily be governed by the rules as already laid down, yet if, in the judg-

ment of the college authorities, a student is neglecting his work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary. Moreover, it may be withdrawn as a punishment for misconduct. Prospective students or their parents may, upon application, obtain a copy of the faculty rules governing student relations to the College.

FRESHMAN REGISTRATION.

All members of the incoming freshman class are required to be in residence on the campus for the period of September 19 to September 24, 1938, inclusive. This period is known as Freshman Week. During this week will be given the several psychological examinations and tests required of freshmen. In addition physical examinations will be given to the men students. Such matters as pertain to schedule and section assignments will be taken care of at the same time. Lectures on student activities, college customs, and college curriculum will be given also. The object of this week is to introduce the new student into the College, so that only the minimum amount of time will be lost when the actual studies begin.

Admission to Collegiate Courses

A. APPLICATION FOR ADMISSION.

Correspondence concerning admission should be addressed to the Dean's office.

Every applicant for admission to the college must be at least sixteen years old, and must present to the Dean proper testimonials of character, which, whenever possible, should come from the principal of the school at which the applicant has prepared for college. All applications for admission should be received at the Dean's office on or before June first of the year in which the candidate expects to enroll. Blanks for such application may be obtained by addressing the Dean of the college. All entrance credentials must be in the hands of the Dean before the applicant can matriculate.

B. MODES OF ADMISSION.

Students are admitted to the freshman class either upon certificate or upon examination. No *diploma* from a secondary school will be accepted.

Certificates. — The Massachusetts State College is affiliated with the New England College Entrance Certificate Board. Therefore certificates of admission will be accepted from schools approved by the Board. Certificates of admission will also be accepted from any Massachusetts school listed as class "A" by the State Department of Education, but not included in the approved list of the New England College Entrance Certificate Board. Principals of schools in New England who desire the certificate privilege should address the secretary of the Board, Professor Frank W. Nicolson, Wesleyan University, Middletown, Conn. Certificates from schools outside of New England may be received if those schools are on the approved list of the leading colleges of the section in which the school in question is located.

The credentials of the Board of Regents of the State of New York are accepted as satisfying the entrance requirements of this college when offered subject for subject, provided the grades are satisfactory.

Certificates in order to be accepted must present in the prescribed and restrictive elective groups at least three of the necessary fourteen and one-half units. It is to be understood, however, that responsibility for certification in either elementary French, elementary German, English 1 or English 2, Latin A, Greek A or Algebra, must be assumed by one school, if the candidate has received his preparation in any one subject named above in more than one school. Subjects lacking on certificate must be made up at the time of the examinations for admission. Conditions to the amount of two units will be allowed.

Blank forms for certification — sent to principals or school superintendents only — may be obtained on application to the Dean of the college.

Special Certificate Arrangement for Students from Agricultural Schools. — Superior graduates of Vocational Schools of Agriculture in Massachusetts and Vocational Agricultural Departments in Massachusetts High Schools may be accepted for the Degree of Vocational Agriculture provided: —

(*a*) they are unqualifiedly recommended by the Vocational Division of the Department of Education as *bona fide* Vocational Graduates with superior rank; and

(*b*) that they can present at least 14½ units of certified entrance, approved as to quality and quantity by the State Department of Vocational Education.

Admission by Four Comprehensive Examinations. — By this plan a candidate's qualifications for admission will be based upon the following considerations:

(*a*) School Record: A candidate must present to the Committee on Entrance a complete transcript of his secondary school course giving the subjects and the grades for the four years previous to college entrance, and a confidential estimate of character, personality, and promise of ability to do college work from the school principal. This should be sent to the Dean not later than May 1. The Com-

mittee must give its permission before the applicant may take the examinations.

(*b*) The following comprehensive examinations must be taken unless for satisfactory reasons the Committee allows a substitution for 3: —

1. English . . . . . three units.
2. Mathematics, either Mathematics Beta or Mathematics A.
3. A foreign language, selected by the applicant . two units.
4. A fourth subject designated by the applicant and approved by the Committee on Admissions.

These must be the College Entrance Examination Board Plan B examinations given in June. A candidate under this plan will be admitted without condition or refused admission. In the event that a substitution is allowed for foreign language the student must take at least one year of modern language in college without receiving college credit therefor.

C. EXAMINATIONS.

Entrance examinations for admission to the Massachusetts State College will be held at the following centers: —

In June . . . . Amherst, Stockbridge Hall, room 114.
Cambridge, Massachusetts Institute of Technology, Massachusetts Ave. entrance.

In September . . . Amherst, Stockbridge Hall, room 114.

Please note that September examinations are held in Amherst only.

Schedule for Entrance Examinations June 16-18, 1938.

First Day.

8.30 A.M. Algebra.
10.30 A.M. Chemistry.
2.00 P.M. History (ancient, medieval and modern, English, United States and Civics).

Second Day.

8.30 A.M. English 1 and 2.
11.30 A.M. Biology.
2.00 P.M. Plane Geometry.
3.30 P.M. Physics.

Third Day.

8.30 A.M. French, German, Spanish, required and elective.
1.00 P.M. Latin, elementary, intermediate and advanced. Solid geometry and Trigonometry.

Schedule for Entrance Examinations September 14-16, 1938.

First Day.

8.30 A.M. Algebra.
10.30 A.M. Chemistry.
2.00 P.M. History (ancient, medieval and modern, English, United States and Civics).

Second Day.

8.30 A.M. English 1 and 2.
11.30 A.M. Biology.
2.00 P.M. Plane Geometry.
3.30 P.M. Physics.

Third Day.

8.30 A.M. French, German, Spanish, required and elective.
1.00 P.M. Latin, elementary, intermediate and advanced. Solid geometry and Trigonometry.

D. REQUIREMENTS FOR ADMISSION.

The requirements for admission are based on the completion of a four-year high school course or its equivalent and are stated in terms of units. A unit is the equivalent for at least four recitations a week for a school year.

Fourteen and one-half units must be offered for admission in accordance with the entrance requirements outlined below. In some instances students are allowed to enter conditioned in not more than two units.

Entrance Requirements.

1. *Prescribed.* — The following units are required: —

Algebra	1½
Plane Geometry	1
English 1 (Grammar and Composition)	2
English 2 (Literature)	1
History	1
A foreign language	2
	8½

2. *Restricted electives.* — From two to six units selected from the following subjects: —

Mathematics and Science.

Solid Geometry	½
Trigonometry	½
Biology	1
*Botany	½ or 1
Chemistry	1
*Geology	½
*Physical Geography	½
Physics	1
*Physiology	½
*Zoölogy	½

History.

Ancient	1
English	1
Medieval and Modern	1
United States and Civics	1

Foreign Languages.

Elementary French	2
Elementary German	2
Elementary Spanish	2
Elementary Latin	2
*Elementary Greek	2
Intermediate French	1
Intermediate German	1
Intermediate Spanish	1
Intermediate Latin	1
*Intermediate Greek	1
Advanced French	1
Advanced German	1
Advanced Spanish	1
Advanced Latin	1

* No examinations given. To be offered for entrance credit on certificate only.

3. *Free margin electives* — not over four units. In case fourteen and one-half units cannot be presented in the prescribed and restricted elective groups, units not to exceed four may be offered as free margin electives. Credit in the free margin will be allowed for any substantial courses (agriculture, general science

and fourth year English included) not listed under the prescribed and restricted elective groups for which credit of not less than one-half unit earned in one year is given toward a secondary school diploma. Since no entrance examinations are given in these subjects they may be offered only on certificate.

E. OTHER INFORMATION ABOUT ENTRANCE.

1. If elementary algebra and plane geometry are counted as three units the total requirement for admission will be fifteen.
2. Both the credits under the prescribed and restricted elective groups must be presented either by certificate from an approved school or by examination or by a combination of both. Credit by certificate will not be accepted unless at least three units are offered.
3. Candidates are allowed to spread their entrance examinations over the three consecutive periods just previous to their entrance into college. A period means June to September of the same year.
4. Examinations for the removal of entrance conditions will be held during the second week of January.
5. All entrance conditions must be satisfied before a student is permitted to enter upon the work of the sophomore year.
6. The privileges of the college may be withdrawn from any student at any time if such action is deemed advisable, regardless of whether entrance was gained by certificate or examination.
7. The passing grade for an entrance examination is 60 per cent.

F. ADMISSION TO ADVANCED STANDING.

A student desiring to transfer to this College from another of recognized standing must present the following credentials: —

1. A letter of honorable dismissal from the institution with which he has been connected.
2. A statement or certificate of his entrance record.
3. A statement from the proper officer showing a complete record of his work while in attendance.
4. A marked catalogue showing the courses pursued.
5. A statement from the proper officer, giving the total number of credits required for graduation by the institution from which the applicant is transferring, and, of this total, the number that the applicant has satisfactorily completed at the time of the transfer.

The above credentials must be sent directly from the Registrar's office of the college from which the student is transferring. They should be addressed to the Dean of Massachusetts State College. Applications will be judged wholly on their merits. The College may prescribe additional tests before accepting applicants or determining the standing to be granted them.

At least one year's work in residence is required of any student desiring to be recommended for the Bachelor of Science degree.

G. STATEMENT OF PREPARATION REQUIRED FOR ADMISSION.

Agriculture.

Entrance credit in agriculture is granted on the following basis: —

I. Massachusetts State College accepts a maximum of four units in agriculture (except as described on page 21) from any secondary or county agricultural high school offering work in that subject, provided evidence of such work having been done is submitted on a principal's statement, as is indicated in the "free margin" group.

II. In high schools organizing agricultural club work under the supervision and rules of the junior extension service of the College, one credit is granted for each full year of work performed under the following plan:—

Work of the Winter Term. — (*a*) The study of textbooks such as are suitable for secondary school instruction in agriculture.

(*b*) Course of study: A general outline of suggested topics for study.

(*c*) Visits by a representative of Massachusetts State College for observation,

counsel and advice in regard to kind and amount of work being done in agriculture.

(*d*) Formation of an agricultural club with officers from among its own members, meeting once a month under local supervision of someone authorized to act for the school authorities.

Work of the Spring Term. — Same in general form as winter term.

Work of Summer Term. — An approved project conforming to the rules of some one or more of the agricultural clubs of the junior extension service of Massachusetts State College.

Work of the Fall Term. — (*a*) An exhibit of work.

(*b*) Reports and story of achievement submitted to the junior extension service of the college.

Biology.

The entrance examination in biology will cover the work outlined by the College Entrance Examination Board. This work should extend through one full year and include both laboratory and textbook study. The requirements are met by Hunter's *Civic Biology,* Peabody & Hunt's *Biology and Human Welfare* and similar texts.

Botany.

For one unit of credit in botany, the work outlined in the statement of requirements issued by the College Entrance Examination Board, or its equivalent, will be accepted. This work should occupy one school year and include laboratory and supplementary textbook study. For one-half unit of credit, work that covers the same ground but occupies half the time required for a full unit of credit will be accepted. These requirements are met by such texts as Stevens' *Introduction to Botany* and Bergen & Davis' *Principles of Botany.* A notebook, containing neat, accurate drawings and descriptive records forms part of the requirement for either the half-unit or the one-unit credit. The careful preparation of an herbarium is recommended to all prospective students of this College, although the herbarium is not required.

Chemistry.

The entrance examination in chemistry will cover the work outlined by the College Entrance Examination Board as preparatory for college entrance. In general, this consists of a year of high school chemistry from any standard textbook, with laboratory work on the properties of the common elements and their simpler compounds. No particular work is prescribed. The keeping of a notebook is required.

Students who do not take chemistry in the preparatory school begin the subject in college.

Mathematics.

(*a*) *Required.* — Algebra: The four fundamental operations for rational algebraic expressions; factoring, determination of highest common factor and lowest common multiple by factoring; fractions, including complex fractions; ratio and proportion; linear equations, both numerical and literal, containing one or more unknown quantities; problems depending on linear equations; radicals, including the extraction of the square root of polynomials and numbers; exponents, including the fractional and negative; quadratic equations, both numerical and literal; simple cases of equations with one or more unknown quantities that can be solved by the methods of linear or quadratic equations; problems depending upon quadratic equations; the binomial theorem for positive integral exponents, the formulas for the *n*th term and the sum of the terms of arithmetic and geometric progressions, with applications.

Plane Geometry: The usual theorems and constructions of good textbooks, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas; regular polygons and the measurement of the circle; the solution of numerous original exercises, including loci problems; applications to the mensuration of lines and plane surfaces.

(*b*) *Elective.* — Solid Geometry: The usual theorems and constructions of good

textbooks, including the relations of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders and cones; the sphere and spherical triangle; the solution of numerous original exercises, including loci problems; applications to the mensuration of surfaces and solids.

Plane Trigonometry: A knowledge of the definitions and relations of trigonometric functions and of circular measurements and angles; proofs of the principal formulas and the application of these formulas to the transformation of the trigonometric functions; solution of trigonometric equations, the theory and use of logarithms, and the solution of right and oblique triangles. Students should bring logarithm tables to the examination.

Physics.

To satisfy the entrance requirement in physics, the equivalent of at least one unit of work is required. This work must consist of both classroom work and laboratory practice. The work covered in the classroom should be equal to that outlined in Hall & Bergen's *Textbook of Physics* or Millikan & Gale; the laboratory work should represent at least thirty-five experiments involving careful measurements, with accurate recording of each in laboratory notebook.

Physiology.

Hough & Sedgwick's *The Human Mechanism;* Martin's *The Human Body; Briefer Course.*

Zoölogy, Physical Geography, Geology.

The following suggestions are made concerning preparation for admission in the subjects named above: —

For physiography, Davis' *Elementary Physical Geography;* Gilbert & Brigham's *Introduction to Physical Geography.* For zoölogy, textbooks entitled *Animals* or *Animal Studies,* by Jordan, Kellogg and Heath; Linville & Kelley's *A Textbook in General Zoölogy.* For geology, A. P. Brigham's *A Textbook of Geology* or Tar's *Elementary Geology.*

History.

The required unit must be offered in either ancient history, medieval and modern history, English history, or United States history and civics. Either one, two or three elective units in any of the historical subjects here named may be offered, provided that no unit be offered in the same subject in which the required unit has been offered.

Preparation in history will be satisfactory if made in accordance with the recommendations of the committee of seven of the American Historical Association, as outlined by the College Entrance Examination Board. The examination will require comparisons and the use of judgment by the candidate rather than the mere use of memory, and it will presuppose the use of good textbooks, collateral reading and practice in written work. Geographical knowledge may be tested by requiring the location of places and movements on outline maps.

To indicate in a general way the character of the textbook work expected, the texts of the following authors are suggested: Botsford, Morey or Myers, in ancient history (to 814 A.D.); Adams, West or Myers, in medieval history; Montgomery, Larned or Cheyney, in English history; Fiske, together with Muzzey and West, in United States history and civics.

English.

The study of English in school has two objectives: first, the ability to use the English language, in both speech and writing, clearly, correctly and effectively; and, second, the ability to read English literature with understanding and appreciation.

(1) *Speech and Writing* (Two Units). — The first objective makes necessary a rigorous and reiterated instruction in grammar and composition, with special emphasis upon: spelling, sentence structure, punctuation and paragraph development.

(2) *Reading* (One Unit). — The second objective is that of the progressive, four-year course in literature. The student should be trained to read aloud, to

memorize significant passages, to associate the books with their historic background and to have well in hand both content and structure. He should be prepared to answer general questions upon poetry, the essay, prose fiction, the drama and biography by the presentation of varied and definite detail from such standard books as those recommended by the College Entrance Examination Board in its current bulletin. However accurate in subject matter, no paper will be considered satisfactory if seriously defective in punctuation, spelling or other essentials of good usage.

The candidate may effect admission in English: by passing the College Entrance Examination Board's comprehensive examination (3 units), by certification, from an accredited school, in English 1 (2 units) and English 2 (1 unit); or by passing this college's examinations in these subjects in June or in September. Regardless of his method of admission, however, he will be gravely handicapped in his freshman English courses if inadequately prepared in any one of the three phases of study indicated in this statement.

Foreign Languages.

(French, Spanish, German, Latin, Greek.)

Two, three, or four* units of entrance credit in each of the above foreign languages may be presented by certificate or by written examination. Not less than two units (first two years) will be accepted in any one language.

No examination for a third or a fourth unit of credit in any language will be given unless the candidate has previously presented by certificate or by written examination the two or three preceding units respectively in that language.

The preparation expected for each of the above units is that stated in the Definition of Requirements of the College Entrance Examination Board.

* A maximum of three units may be offered in Greek. The College does not offer an entrance examination in Greek.

Collegiate Course of Instruction

The course of study consists of four years of work planned to provide scientific foundation, cultural background, and professional training, and leads to the degree of Bachelor of Science (B.S.). The following six different major lines of specialization are provided: Agriculture; Horticulture; Home Economics; the Physical and Biological Sciences; the Social Sciences; and Physical Education (for men). Additional fields of specialization are provided in Recreational Planning and Wild Life Management under the direction of a special adviser.

FRESHMAN YEAR.

The work of the freshman year consists of definitely required subjects, most of which are identical for all students, in order to insure a uniform preparation in the more fundamental collegiate subjects. However, some differentiation is required in order to properly introduce each student to some major line of work in which he may find his professional interest, and major faculty contacts. This course is presented below in tabular form.

Table of Freshman Subjects.

(Groups A and C of each semester are required of all freshman men, Groups A and D of all freshman women, and one of the options of Group B must be selected by each freshman to complete his year's program of study.)

Group		First Semester	Cr.	Second Semester	Cr.
A		English 1	3	English 2	3
		Mathematics 1†	3	Mathematics 2†	3
		Botany 1* or	4	Botany 1* or	4
		Chemistry 1 or 3*	4	Chemistry 1 or 3*	4
		History 3* or	3	History 3* or	3
		Orientation 1*	3	Orientation 1*	3
B	I	AGRICULTURE divisional electives			
		Animal Husbandry 1	3	Agronomy 2	3
	II	HOME ECONOMICS divisional electives			
		Home Economics 1	3	Home Economics 2	3
	III	HORTICULTURE and LANDSCAPE ARCHITECTURE divisional electives			
		Horticulture 1	3	Agronomy 2	3
	IV	PHYSICAL and BIOLOGICAL SCIENCE divisional electives			
		French 1 or 5 or 7	3	French 2 or 6 or 8	3
		German 1 or 5	3	German 2 or 6	3
	V	SOCIAL SCIENCE divisional electives			
		French 1 or 5 or 7	3	French 2 or 6 or 8	3
		German 1 or 5	3	German 2 or 6	3
	VI	PHYSICAL EDUCATION divisional electives			
		French 1 or 5 or 7	3	French 2 or 6 or 8	3
		German 1 or 5	3	German 2 or 6	3
C		Military 1	2	Military 2	2
		Physical Education 3	1	Physical Education 4	1
		Physical Education 1	1		
D		Freshman Course 5	1	Freshman Course 6	1
		Physical Education 7	2	Physical Education 8	2
		Physical Education 1	1		

† French or German is optional for Mathematics for students who intend to specialize in Home Economics.

* One semester of each required during freshman year.

SOPHOMORE YEAR.

The work of the sophomore year is also largely prescribed in order to insure as broad a cultural background as possible in preparation for the more specialized training of the last two years. Under the guidance of a major group advisory committee the student begins in this year certain optional choices of electives leading to the special courses of major work which he will later pursue. This course is presented on the following page in tabular form.

Table of Sophomore Subjects.

(Groups A and C are required of all sophomore men; Groups A and D of all sophomore women; and two of the electives of Group B must be selected by each sophomore, with the approval of his major group advisory committee.)

Group		First Semester	Cr.	Second Semester	Cr.
A		English 25 and 29	3	English 26 and 30	3
		Economics 25 or	3	Economics 25 or	3
		Psychology 26	3	Psychology 26	3
		Sophomore Science	3	Sophomore Science	3
B	I	AGRICULTURE divisional electives			
		Dairy 25 or Poultry 25	3	Animal Husbandry 26	3
		Bacteriology 31	3	Mathematics 30	3
		Mathematics 29	3	Chemistry 32	3
		Chemistry 31	3	Agricultural Economics 26	3
	II	HOME ECONOMICS divisional electives			
		Home Economics 25	3	Home Economics 30	3
		Drawing 31	3	Home Economics 32	3
	III	HORTICULTURE and LANDSCAPE ARCHITECTURE divisional electives			
		Olericulture 25	3	Pomology 26	3
		Drawing 25	3	Drawing 26	3
		Botany 25	3	Entomology 26	3
		Chemistry 25	4	Floriculture 26	3
		Bacteriology 31	3	Horticulture 26	3
	IV	PHYSICAL and BIOLOGICAL SCIENCE divisional electives			
		Mathematics 29	3	Geology 28	3
		Physics 25	3	Mathematics 30	3
		Chemistry 25	4	Physics 26	3
		Zoölogy 25	3	Chemistry 26	4
		Botany 25	3	Zoölogy 26	3
		Chemistry 31	3	Physiology 32	3
				Chemistry 32	3
				Entomology 26	3
				Mathematics 26	3
				Physics 28	3
	V	SOCIAL SCIENCE divisional electives			
		French 7, 29, or 31	3	French 8, 30, or 32	3
		German 25 or 27	3	German 26 or 28	3
		History 25	3	Economics 26	3
		History 31	3	History 32	3
				Sociology 28	3
	VI	PHYSICAL EDUCATION divisional electives			
		For those men specializing in Physical Education and Teacher-Coaching, electives from the Physical and Biological Science division should be selected; for those specializing in Recreation and Leisure-Time Training, electives from the Horticulture and Landscape Architecture division should be selected.			
C		Military 25	2	Military 26	2
D		Physical Education 27	2	Physical Education 28	2

JUNIOR AND SENIOR YEARS.

The work of the junior and senior years is, with certain restrictions, elective under the guidance of a special adviser, who is a member of the advisory committee of the major group which the student selects during his freshman year as his field for professional training. The aim of the last two years is to give to each student as high a degree of proficiency in some one branch of learning as is possible without sacrificing the breadth of knowledge and training which should characterize a well-rounded college course. In order to insure this result, each student is required to complete, during his last two years of study, certain requirements for specialization within his major group* and is advised to take at least three courses in other groups:

I. Agriculture: Departments of Agricultural Engineering; Agronomy; Animal Husbandry; Dairy Industry; Agricultural Economics and Farm Management; Poultry Husbandry.

II. Home Economics: Department of Home Economics.

III. Horticulture: Departments of Floriculture; Forestry; Landscape Architecture; Horticultural Manufactures; Olericulture; Pomology.

IV. Physical and Biological Sciences: Departments of Bacteriology and Physiology; Botany; Chemistry; Entomology; Zoölogy and Geology, Mathematics and Civil Engineering; Physics; Veterinary Science.

* Students specializing in Recreational Planning or Wild Life Management should consult the special adviser in charge of the course as to the requirements in the various major groups.

V. Social Sciences: Departments of Economics; Education and Psychology; History and Sociology; Languages and Literature.

VI. Physical Education: Department of Student Health; Physical Education for Men; Physical Education for Women.

For purpose of fulfilling the extra group credits advised below, Groups I to III inclusive are regarded as a unit, since their work is comparable in field and character.

Specific Requirements.

Rule 1. *Credits for Graduation.* — The minimum number of credits for graduation shall be 60 junior-senior credit hours, in addition to the satisfactory completion of the required course of the freshman year and of the required and elective groups of the sophomore year.

Rule 2. *Credits Each Semester.* — Except upon special permission from the Scholarship Committee, no student shall enroll for more than 17 nor less than 14 credits each semester of his junior and senior years.

Rule 3. *Specialization.* — At the close of his sophomore year each student shall designate some department within his major group in which he desires to specialize, and shall complete, during his junior and senior years, not less than 15 and not more than 30 credits in junior-senior courses offered in that department.

Rule 4. *Credit in Military Science and Tactics.* — Not to exceed 10 junior-senior credits in Military Science may be included in the minimum requirements for graduation.

Rule 5. *Advisers.* — The work of each student will be under the general supervision of his major group advisory committee from the beginning of his sophomore year, and during his junior and senior years under the immediate supervision of a special adviser who shall be some member of that committee and shall represent the department in which the student is to specialize under the terms of Rule 3. The adviser has full authority to prescribe the student's work required by Rule 3, and may advise the student with reference to his elections under Rule 6.

Rule 6. *Free Electives.* — Subject to the limitations imposed by Rules 2, 3, and 4, each student may elect during his junior and senior years any courses offered in the catalogue for which he has the necessary prerequisite training. Students are advised to elect at least three courses in divisions other than the one in which they are registered for their major work.

Description of Courses

[Heavy-faced Roman numerals indicate the semester in which the course is given. Numbering of courses: 1 to 24, inclusive, freshmen; 25 to 49, inclusive, sophomores; 50 to 74, inclusive, juniors; 75 to 99, inclusive, seniors.]

Note: Where possible, the class hours are included in the course description. A complete schedule of class hours will be published later.

SPECIAL COURSES FOR FRESHMEN.

1. **I** and **II.** Orientation Course. — The word orientation may be defined as "the determination of one's bearings or true position in relation to circumstances, ideas, etc." This course attempts to orient the student to the physical and social world in which he lives and works. The first part deals primarily with the nature of our universe and the method of thinking used by man in coming to an understanding of it. An attempt is made to establish a time and space perspective and to form a well defined conception of the cosmos and one's relation to it. A total viewpoint is sought. It is shown that this comes only through a synthesis of the contributions of many subjects, astronomy, geology, chemistry, physics, biology, etc. During the second part of the course the main theme is man in society. The student is made conscious of his own original nature and of the several institutions which serve that nature. The development of these institutions is traced. The student is urged to identify his own activities with them. There is also an introduction to some of the social problems man now faces because of his attempt to understand and control his physical environment and himself. This is really an orientation to the social sciences.

The central thought of the course is human life. The aim is to see life as a whole. Since this is the objective no attempt is made to teach the subject matter of any one science. Rather the course seeks to organize around the individual life the material from many sciences without considering the conventional lines separating one from the other. It suggests how from such an organization a fuller understanding of life may arise and how this may lead to the living of life more knowingly and abundantly. It is hoped that by this orientation the student may see unity in the mass and maze of college subjects and that he may be led to plan his course more intelligently. Theoretically, such an orientation should assist the student in organizing his future information and aid him at the end of his senior year in making the final synthesis of his four years of subject matter in terms of his own life.

3 class hours. Credit, 3.

Assistant Professor Lanphear.

5. **I.** College Adjustments. — For freshman women. A study of the experiences of everyday life in college, to help students recognize various social problems and think in terms of their solution.

1 class hour. Credit, 1.

Miss Skinner.

6. **II.** Vocational Opportunities for Women. — For freshman women. An outline of the occupational progress of women, with special attention to the opportunities for women in those vocations for which the Massachusetts State College gives foundation preparation.

1 class hour. Credit, 1.

Miss Hamlin.

DIVISION OF AGRICULTURE.

Professor Rice.

Agricultural Engineering.

The courses in agricultural engineering are planned to give a working knowledge of those phases of engineering which apply directly to the farm. It is expected that the student will acquire a clear understanding of modern farm

practice as it relates to permanent improvements of the farm and the farmstead, and in the selection and use of farm equipment.

Elective Courses.

50. **II.** Shop Work. — For juniors; seniors may elect. This course gives instruction in the care and use of carpenters' tools through bench work, repair of farm equipment, and building construction. Practice in building forms, mixing and placing concrete, framing, cutting rafters, etc., make up this portion of the subject. Instruction in forging, pipe fitting, soldering, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water supply systems make up the other portion of the work.
1:00-2:40 M. W. F. 3 2-hour laboratory periods, credit, 3.
Mr. Pushee and Mr. Newlon.

51. **I.** House Planning and Construction. — For juniors; seniors may elect. Plan designs of the small house will be made. The arrangement of interior equipment, especially in the kitchen, lighting, heating, water supply, and sewage disposal will be studied, together with a brief history of the house, materials, construction methods, equipment, and architectural styles. Consideration will be given to the economics of house building, including financing and to maintenance and overhead expense.
1 class hour. 8:00-8:50 Th.; 1:00-2:40 W.; 8:00-9:50 S.
2 2-hour laboratory periods, credit, 3.
Assistant Professor Markuson.

52. **II.** Rural Sanitary Equipment. — For juniors; seniors may elect. This course deals with the problems of water supply, sewage disposal, and ventilation which pertain to the farm and small community. Careful studies are made of water systems and sewage disposal plants and their adaptability to various conditions.
1 class hour. 11:00-11:50 Tu.; 2:50-4:30 F.
1 2-hour laboratory period, credit, 2.
Assistant Professor Markuson.

60. **II.** Household Equipment. (1938-39). — For juniors and seniors. A study of the selection, operation, care, and efficient arrangement of equipment, with an analysis of the time and energy required in various processes. Given in alternate years.
2 class hours. 1 2-hour laboratory period, credit. 3.
Assistant Professor Tague.

71. **I.** Motors. — For seniors; juniors may elect. The course deals with the gasoline engine as used for stationary work, automobiles, and tractors. The theory of the internal combustion engine is taken up in order to emphasize the effect of design and operation on power and economy. The various types of carburetors, ignition, and lubrication systems are studied in detail. Instruction is given by means of lectures and textbooks, and by operating and repairing stationary engines, automobiles, and tractors. Special attention is given to overhauling and repairing. This course also deals with the application of electricity to farm operations including wiring and electric motors, and refrigeration equipment as used on New England farms.
1:00-2:40 M. W. F. 3 2-hour laboratory periods, credit, 3.
Assistant Professor Tague and Mr. Pushee.

72. **II.** Drainage and Irrigation Engineering. — For seniors; juniors may elect. The course covers the engineering phase of drainage and irrigation. The various systems are studied, and practice is given in the design of drainage and irrigation systems. Field work gives practice in surveying for drains, platting, locating drains, erecting batterboards, and laying tile. Practice is given in assem-

bling equipment for spray irrigation, and the flow of water through nozzles is studied by means of laboratory tests.
1 class hour. 10:00-10:50 Th.; 2:50-4:30 M. 1 2-hour laboratory period, credit, 2.
Assistant Professor MARKUSON.

74. **II.** FARM STRUCTURES. — For seniors; juniors may elect. A study of the strength and durability of concrete, wood, stone, and clay products, and of the mechanical principles underlying their use in farm construction. The design of various farm buildings, such as the general purpose barn, dairy stable, hog house, sheep barn, milk house, etc. In the drafting room, details of construction will be worked out, a study of the mechanics of simple roof trusses will be made, and a complete design of some major farm building will be finished in all essential details. Blueprints of the finished design will be made.
1 class hour. 10:00-10:50 Tu.; 1:00-2:40 M. F.
2 2-hour laboratory periods, credit, 3.
Assistant Professor MARKUSON.

80. **II.** DAIRY MECHANICS (1937-38). — For juniors; seniors may elect. A study of dairy mechinery, including steam boilers, engines, pumps, traps, refrigeration machinery, and heat-controlling devices. Practice is given in pipe fitting, packing valves, lacing belts, and similar repair jobs on the equipment used in dairy plants. Given in alternate years.
1 class hour. 1 2-hour laboratory period, credit, 2.
Assistant Professor TAGUE and Mr. NEWLON.

83. **I** and **II.** AGRICULTURAL ENGINEERING PROBLEMS. — Open only to seniors specializing in the department. This course consists of individual problems chosen by the students under guidance of the department. The work is of an advanced nature, supplementing that of the regular agricultural engineering curriculum. Copy of project outline, indicating the number of credits, must be filed with the department and with the Dean at the opening of the semester.
Hours by arrangement. Credit, 3.
The DEPARTMENT.

85. **I.** RURAL ELECTRIFICATION (1938-39). — For seniors; juniors may elect. This course is planned primarily for students who are interested in the application of electricity to agriculture. It includes a study of the generation and distribution of electricity for light and power. Special emphasis is placed on the utilization of electricity on the farm and in rural communities. Given in alternate years.
2 class hours. Hours by arrangement. 1 2-hour laboratory period, credit, 3.
The DEPARTMENT.

Agronomy.

Professor EISENMENGER, Assistant Professor DICKINSON, Assistant Professor THAYER, Mr. ISGUR, Mr. EVERSON.

The courses in agronomy are designed to give instruction concerning the basic knowledge of the soil and its management, fertilizers and their use, and the principal products of the field. An important objective of our undergraduate teaching is to give supporting training to groups specializing in other departments. For undergraduates desiring to specialize in agronomy adequate courses are offered, but for those expecting to go into advanced educational or research work our graduate training is recommended as preferable.

Elective Courses.

2. **II.** SOILS. — A general course for freshmen in soils and soil management with special emphasis on their relationship to crop growth. This course is designed to give the student who does not intend to go further in soil studies, a broad background in soil science and its direct application to practical field problems. The course itself is presented with the object of introducing to the student (a) the physical, (b) the chemical, and (c) the biological properties of the soil and their influence upon the economic production of crops. The laboratory work is designed

with the purpose of furnishing direct evidence and a better understanding of the lecture material. Indicators and principles of soil fertility are stressed and part of the time is devoted to fertilizer studies and practices.
2 class hours. 1 2-hour laboratory period, credit, 3.
Mr. Isgur.

51. **I.** Field Crops. — For juniors and seniors. A study of methods and problems of production of field crops important in New England. The successful production of good forage is essential to profitable dairy farming. Special emphasis will be given hay, pasture, and other crops important in dairy farming.
2 class hours. 1 2-hour laboratory period, credit, 3.
Assistant Professor Thayer.

52. **II.** Soil Utilization. — For juniors and seniors. A course intended primarily for those not having had other courses in soils. It deals with the nature and properties of soil types, their adaptation to crops, and special problems arising in the management of extreme soil types.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Mr. Isgur.

54. **II.** Turf and Forage Grasses. — For juniors and seniors. Designed to give a practical working knowledge of fine turf and forage grasses. The identification of seeds and plants, their ecology and relative value will be emphasized.
2 class hours. 10:00-10:50 M. F.; 10:00-11:50 W.
1 2-hour laboratory period, credit, 3.
Assistant Professor Dickinson.

57. **I.** The Bio-physico-chemical Interrelations of the Soil and Plant. — For juniors and seniors. The important biological, physical, and chemical interrelations of the soil and plant are studied. The general external relations of crop plants to their environments, and their mass reactions to growth factors are given special consideration. The work in this course is especially valuable for those students who may be desirous of entering the civil service in agronomy.
3 class hours. Credit, 3.
Mr. Isgur.

77. **I.** Crop Improvement. — For seniors. Theory and practice of the improvement of field crops by breeding and selection.
2 class hours. Hours by arrangement. 1 2-hour laboratory period, credit, 3.
Mr. Isgur.

Prerequisite, Agronomy 51.

78. **II.** Fertilizers. — For seniors; juniors may elect. A study of the source, properties, and behavior of commercial fertilizers and soil amendments. Attention will be given to such questions as home-mixed versus commercial fertilizers, the use of concentrated materials, and the economical purchase of fertilizers.
2 class hours. 9:00-9:50 Tu. Th.; 1:00-2:40 Tu.
1 2-hour laboratory period, credit, 3.
Mr. Everson.

82. **II.** Special Problems in Agronomy. — For seniors taking major work in agronomy.
3 2-hour laboratory periods, credit, 3.
Professor Eisenmenger.

Recreational Planning.

50. **II.** Maintenance and Service Considerations. — For juniors and seniors specializing in Recreational Planning. The course will acquaint students with the fundamental facts in the maintenance of the various parts of all types of recreational areas, and with all equipment used and its care. A considerable amount of time will be devoted to service considerations, such as traffic, drinking fountains, policing, and all services that help to make recreation enjoyable and safe.

In conducting this course there will be much investigative work by the students and written reports will be frequent. All work will have a distinct, practical objective.

2 class hours. 1 2-hour laboratory period, credit, 3.
Assistant Professor Dickinson.

Animal Husbandry.

Professor Rice, Assistant Professor Glatfelter, Assistant Professor Parsons, Assistant Professor Foley, Assistant Professor Ensminger.

The courses in animal husbandry are designed to give the student a thorough grounding in the scientific, practical, and commercial phases of horse, sheep, swine, beef, and dairy cattle production. The choice of supporting courses is governed by the student's ultimate objective. Upon completion of the four years' course, three general fields are open to the graduate. First, the practical field comprising the actual production of livestock and its products or the management of livestock farms; second, the professional field which embraces college, secondary school, or extension teaching, or federal, state, or commercial research; and third, the commercial field comprising all phases of the meat-packing, milk-production, wool or feed industries, including connections with the large companies, farmers' cooperative associations, or the operation of local plants.

Elective Courses.

1. I. Types and Market Classes of Livestock. — For freshmen. This course is designed to acquaint the student with the broad aspects of the livestock industry in the United States. It begins with a study of markets and market demands for cattle, sheep, swine, and horses, and then considers the selection and operation of the breeding herd. It also serves as a survey course showing the magnitude of the livestock industry and the importance of livestock and their manifold products in a modern, civilized state. Practice in judging and handling all classes of livestock is provided in the laboratory periods.

2 class hours. 1 2-hour laboratory period, credit, 3.
Professor Rice.

26. II. Breeds of Livestock and Dairy Cattle Judging. — For sophomores. This course is designed to acquaint the student with the history, development, characteristics, and present status of all the breeds of cattle, horses, sheep, and swine commercially important in the United States. Special attention will be paid to the breeds maintained on the college farm. During April and May trips will be taken on Saturdays to the leading herds of dairy cattle in New England. The three highest ranking students in advanced judging will represent the college in the intercollegiate Dairy Cattle Judging Contests at the Eastern States Exposition and the National Dairy Show the following fall.

2 class hours. 1 2-hour laboratory period, credit, 3
Assistant Professor Foley.

51. I. The Nutrition of Farm Animals. — For juniors. This course is designed to give the student an understanding of the mechanics of digestion, absorption, circulation, respiration, and excretion; the functions of proteins, carbohydrates, fats, vitamins, and minerals in body metabolism; the functions of those endocrine glands primarily concerned with nutrition; the nature and value of the various feed stuffs; and methods of calculating rations in order to meet the requirements of various classes of livestock.

2 class hours. 1 2-hour laboratory period, credit, 3.
Assistant Professor Ensminger.

52. II. The Breeding and Improvement of Farm Animals. — For juniors. This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized for the creation of more beautiful and more efficient animal types.

3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Rice.

53. **I.** Meat and Meat Products. — For juniors. This course introduces the student to the opportunities in the packing industry and the possibilities for farm slaughter in New England. It complements the courses in beef, sheep, and swine production and advanced fat stock judging. Laboratory practice in slaughtering and dressing cattle, hogs, sheep, and veal calves is supplied. The resulting carcasses are prepared as wholesale and retail cuts and the utilization of by-products is given attention.
1 class hour. 1:00-1:45 W.; 1:00-2:40 M. F.
2 2-hour laboratory periods, credit, 3.
Assistant Professor Foley.

56. **II.** Beef and Sheep Production and Livestock Judging. — For juniors. This course includes studies of the development of the beef and sheep industries, situation and outlook, phases of production, systems of management, herd and flock improvement, feeding, management, breeding, equipment, and fitting and showing. Practice in judging the various classes of fat stock and horses is given, and during April and May trips are taken to the leading herds and flocks in New England. The five highest ranking students in the judging work represent the college in the Intercollegiate Livestock Judging Contests at the Eastern States Exposition and the International Livestock Exposition the succeeding fall.
2 class hours. 10:00-10:50 Tu. Th.; 8:00-11:50 S.
1 4-hour laboratory period, credit, 4.
Assistant Professor Ensminger.

73. **I.** Advanced Meat Studies and Judging. — For seniors. This course is designed to impart a knowledge of the fundamental principals involved in judging, buying, and efficiently utilizing meat and meat products. One laboratory per week will be devoted to actual judging in nearby packing plants. The three highest ranking students will be chosen to represent the college at the intercollegiate meat judging contest, International Livestock Show, Chicago, in November.
2:50-4:30 F.; 2 hours by arrangement. 2 2-hour laboratory periods, credit, 2.
Assistant Professor Foley.

75. **I.** Horse and Swine Production. — For seniors. This course includes a study of the development of the breeds of draft and light horses and swine, and a study of the economic, genetic, nutritional, and managerial problems concerned in producing these classes of livestock with particular reference to New England conditions. Practice is also given in fitting and showing and in livestock judging.
2 class hours. 8:00-8:50 Tu. Th.; 8:00-11:50 S.
1 4-hour laboratory period, credit, 4.
Assistant Professor Ensminger.

78. **II.** Dairy Cattle and Milk Production. — For seniors. This course embraces all phases of dairy cattle production and management. It affords an opportunity to seek the solution to the economic, nutritional, genetic, and managerial problems concerned in successful dairying. One period a week will be devoted to talks by outside specialists in the various fields. Laboratory work will consist of a detailed study of methods used on the college farm and opportunities to practice and achieve the various skills necessary to the herdsman or showman.
8:00-9:50 Tu. Th.; 1:00-2:40 W. F. 4 2-hour laboratory periods, credit, 4.
Assistant Professor Foley.

81. **I.** Animal Husbandry Seminar. — For seniors. This is essentially a problem course. Each student will select his own problem in the broad field of animal husbandry, report his progress occasionally to the group, and prepare a final paper covering all phases of the problem.
1:00-2:40 W. 1 2-hour laboratory period, credit, 1.
Professor Rice.

82. **II.** Animal Husbandry Seminar. — For seniors. Students will prepare

original papers and talks on various pertinent topics. Round table discussions of animal husbandry investigational work and practices will be conducted.

1 2-hour laboratory period, credit, 1.
Professor Rice.

91. **I.** Genetics and Eugenics. — For juniors and seniors. This course is open to students other than those specializing in animal husbandry, and deals with the general problems concerned in human reproduction and inheritance. The main topics studied will consist of the physiology of reproduction, the physical basis of inheritance, and the mode of transmission of human characteristics. Consideration will also be given to such questions as the causes of variation, the relative importance of genetic and environmental influences, the mechanism of sex determination, as well as population trends, sterilization and kindred eugenic problems.

3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Rice.

Dairy Industry.

Professor Frandsen, Assistant Professor Mack, Assistant Professor Lindquist.

The courses in dairy industry are offered to meet the needs of students interested in the scientific study of handling market milk, and the making of ice cream, butter, cheese, and other dairy products; agricultural college teaching, and experiment station work; high and secondary school teaching; extension work; research and investigational work.

Elective Courses.

25. **I.** General Dairying. — For sophomores. A general course, introductory to all other courses in dairy industry, and for those who wish to take only one course in dairying to get a general knowledge of the subject. The work covers briefly: a study of milk, its secretion, composition, and various tests applied thereto; methods of pasteurizing and handling milk and cream; the use of separators; elements of ice cream, butter, and cheese making.

2 class hours. 1 2-hour laboratory period, credit, 3.
Professor Frandsen and Assistant Professor Lindquist.

50. **II.** Judging Dairy Products. — For juniors; seniors may elect. A study of market standards and grades of dairy products, with practice in judging milk, ice cream, butter, and cheese. The student learns to recognize quality in dairy products, to detect specific defects, and to know their causes and the means of their prevention. A team is chosen from this class to represent the college in dairy products judging contests at the Eastern States Exposition and the National Dairy Industries Exposition.

1:00-2:40 F. 1 2-hour laboratory period, credit, 1.
Assistant Professors Mack and Lindquist.

52. **II.** Market Milk. — For juniors; seniors may elect. A study of the various phases of the market milk industry: sanitary production, transportation, pasteurization and handling in the city plant, marketing, delivery systems, milk and its relation to public health, inspection, milk laws, food value, and advertising. Cultured milk and other milk drinks also are included. Some milk plants are visited, the cost of the trip not exceeding five dollars.

2 class hours. 8:00-10:50 Tu. Th. 2 2-hour laboratory periods, credit, 4.
Assistant Professor Lindquist.

75. **I.** Dairy Chemistry. — For juniors and seniors. The various physical and chemical properties of milk, milk products, and their components are studied. Testing and control methods commonly used commercially for milk and dairy products are included; moisture and fat determination, casein, salt, and acid tests, work with the Mojonnier apparatus, and other applied chemical tests are taken up in the laboratory.

1 class hour. 8:00-10:50 Tu.; 8:00-9:50 Th. 2 2-hour laboratory periods, credit, 3.
Assistant Professor Mack.

77. I. Butter and Cheese Making. — For juniors and seniors. The first half of the semester is devoted to butter making, the remainder to cheese making, condensed and powdered milks. The various phases of the butter industry studied are: separators and cream separation; pasteurization, neutralization, and ripening of cream; preparation of starter cultures; churning, marketing, and scoring of butter; creamery management. The work in cheese making includes Cheddar, cream Neufchâtel, cottage, processed cheeses, etc. The manufacture of condensed and powdered milk, and commercial casein is also covered.
2 class hours. 11:00-11:50 W. F.; 1:00-3:35 M. F.
2 3-hour laboratory periods, credit, 4.
Assistant Professors Mack and Lindquist.
Prerequisite, Dairy 25.

78. II. Ice-Cream Making. — For juniors and seniors. The course includes a study of the principles and practices of ice-cream making. The effects of such factors as composition, quality, pasteurization, homogenization, aging, and freezing on the finished product are considered. Sherbets, ices, fancy and individual forms, and all flavors of ice cream are studied. Some time is devoted to refrigeration machinery, delivery equipment, and merchandising methods as they are related to the industry.
2 class hours. 11:00-11:50 W. F.; 1:00-3:35 Tu.; 1:55-4:30 Th.
2 3-hour laboratory periods, credit, 4.
Assistant Professor Mack.

79. I. 80. II. Seminar. — For students specializing in dairy industry. The course consists of a study of research done by the experiment stations, also a review of foreign literature. Students prepare papers on timely dairy subjects. Frequent addresses are made to the class by visiting authorities in dairying.
1 class hour. 11:00-11:50 M. Credit, 1.
Professor Frandsen.

Agricultural Economics and Farm Management.

Professor Lindsey, Professor Barrett.

The agricultural economics and farm management curriculum is planned to provide a training not only for those proposing to enter actual farm production but also those fields of business closely related to agriculture. With the rapid development of business allied to agriculture there has arisen a demand for agriculturally trained men in many sections of the commercial world. Such lines as marketing of milk and other dairy products, fruit and vegetable distribution, feed and fertilizer manufacturing and marketing, canning and food preservation, agricultural machinery development and utilization, and meat packing and distribution are offering opportunites for graduates trained in agricultural business. The agricultural division of banks, insurance companies, railroads, and similar organizations have openings for agricultural students of statistical and business training. The fields of research, extension, and teaching, in state and federal institutions and secondary schools, provide further openings for graduates of agricultural economics and farm management.

Elective Courses.

26. II. Economics of Agricultural Production. — For sophomores. The principles of production economics applied to agriculture, special emphasis being placed upon specialization, combination of the factors of production, and diminishing and increasing inputs and outputs.
3 class hours. Credit, 3.
Professor Barrett.

55. I. Marketing Farm Products (1938-39). — For juniors and seniors. An analysis of the present system of assembling, transporting, storing, and distributing farm products as a basis for intelligent direction of efforts in increasing the efficiency of marketing methods. Given in alternate years.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Lindsey.

56. **II.** The Fundamentals of Cooperation. — For juniors and seniors. A study of the principles of organization, management, and operation of cooperative associations. Special emphasis is placed upon types of organization, methods of formation, financial and operating policies, membership relations, sales methods and policies, and public relations.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor Lindsey.

57. **I.** Agricultural Credit and Land Appraisal (1937-38). — For juniors and seniors. A study of the development, use, functions, and operations of public and private credit institutions which are available to agriculture. Special emphasis is given to the practical aspects of credit policy and land appraisal. Given in alternate years.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Lindsey.

71. **I.** Agricultural Economic Theory (1938-39). — For juniors and seniors. The course is a comparative and critical study of the significant contributions of the leading economists to the theory of agricultural economics from the time of Adam Smith to the present. Given in alternate years.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Professor Lindsey.

75. **I.** Farm Organization. — For seniors. This course analyzes the functions of the farmer as a business proprietor. Some of the problems and principles considered are: choice and combination of farm enterprise, least cost and highest profit, farm and building layout, the economical use of funds, farm credit, adjustments of production and price cycles as affecting farm organization. Records of the organization of actual farms are studied and analyzed.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor Barrett.

Prerequisite, the required freshman and sophomore work in agriculture or horticulture, or the permission of the instructor.

76. **II.** Farm Operation and Advanced Farm Organization. — For seniors. The first part of this course further develops the principle of opportunity costs, and includes the use of farm records and accounts as a basis for planning and budgeting, "scientific management" as applied to efficient farm technique, and the execution of the plans and policies of the organization. The last part of the semester will be given over to a more specific study of the principles and practices outlined in Course 75, with special reference to their application to selected farms. Field trips are required. The approximate expense for travel is five dollars.
1 class hour. 10:00-10:50 Th.; 1:00-4:30 M. 1 4-hour laboratory period, credit, 3.
Prerequisite, Agricultural Economics 75. Professor Barrett.

79. **I.** Principles and Methods of Statistics. — For seniors and graduate students; juniors may elect. Methods of collecting, analyzing, interpreting, and presenting statistical information. The application of statistical methods to the fields of agriculture, economics, education, business, and industry is emphasized through practical laboratory problems.
1 class hour. 1:00-1:45 W.; 1:00-2:40 M. F. 2 2-hour laboratory periods, credit, 3.
Professor Lindsey.

80. **II.** Advanced Statistics. — For seniors and graduate students. This course deals with the use of statistics in the analysis of economic data with special emphasis upon prices; the use of mutiple correlation methods in the study and analysis of prices of agricultural and certain other commodities.
1 class hour. 1:00-1:45 W.; 1:00-2:40 M. F. 2 2-hour laboratory periods, credit, 3.
Professor Lindsey.

82. II. Advanced Farm Operation. — For seniors majoring in agriculture; others by permission of instructor. A study of the efficiency of operations on a specific farm. An original semester paper will be required.
3 hours or equivalent. Hours by arrangement. Credit, 3.
Professor Barrett.

89. I. 90. II. Seminar. — For seniors majoring in agriculture; others by arrangement. Farm management and agricultural economic problems will be considered from the viewpoint of research, extension, and teaching.
1 class hour. Hours by arrangement. Credit, 1.
The Department.

Poultry Husbandry.

Professor Graham, Professor Sanctuary, Assistant Professor Banta, Mr. Vondell.

The department aims to give instruction in the science, art, and practices of poultry keeping not only to the men majoring in this department, but also to students majoring in other departments and desiring supporting courses in poultry husbandry. Our major courses prepare men for the successful operation of commercial poultry farms and marketing projects either as owners or managers; for graduate work, teaching, extension and investigational work.

Elective Courses.

25. I. Poultry Judging. — For sophomores. A study of the origin and evolution of our standard breeds and varieties of domestic fowl; judging production quality, using trapnested birds; judging exhibition quality by score card and comparison. One or more poultry farms, an egg-laying contest, and a poultry show will be visited. Poultry judging teams competing in the intercollegiate contest each January are trained in this course.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Assistant Professor Banta.

51. I. Poultry Feeds and Feeding. — For juniors; seniors may elect. A study of the common feeds and the scientific principles underlying the field of nutrition. Recent experimental work and current feeding problems will receive special consideration. For observational practice and accumulation of original data, the management of a group of birds will be required for a period of a few weeks.
2 class hours. 11:00-11:50 M. F.; 2 hours by arrangement.
1 2-hour laboratory period, credit, 3.
Professor Graham.

52. II. Incubation and Brooding. — For juniors; seniors may elect. A study of the fundamental principles underlying incubation and brooding practices. The science of physics and general biology is applied to the study of incubation and brooding processes. Students become thoroughly acquainted with modern incubation and brooding equipment through detailed study and operation of typical incubators and brooders. Present-day problems are considered and some are investigated as part of the class work.
1 class hour. Hours by arrangement. 2 2-hour laboratory periods, credit, 3.
Professor Sanctuary.

54. II. Poultry Housing and Sanitation. — For juniors; seniors may elect. A consideration of the biological needs of poultry from the standpoint of housing, and the economic principles governing designing and construction of poultry houses and equipment for poultry farm buildings. The course also embodies a study of the principles of poultry sanitation, including external parasites and the insecticidal agents for their control.
1 class hour. Hours by arrangement. 1 2-hour laboratory period, credit, 3.
Professor Sanctuary.

75. I. Market Poultry and Poultry Products. — For seniors. A study of market classes of poultry and eggs; preparation of poultry products for market;

requirements of different markets; methods of marketing, involving a study of distribution, finances, and business organizations; cold storage and transportation; advertising, prices, and food values. Laboratory exercises in candling, packing, killing, dressing, and similar operations to make the above named factors more concrete. Students are required to fatten pens of chickens, keeping accurate data of the gains in weight and quality, also the costs of feed and labor, and resultant profit or loss. When possible, a short trip to Springfield is arranged to study the handling of poultry products in the local market.
1 class hour. 10:00-10:50 W.; 2 hours by arrangement.
1 2-hour laboratory period, credit, 2.
Mr. Vondell.

77. **I.** Poultry Breeding. — For seniors. Methods of selection and improvement of poultry are developed through the study of the principles of heredity. Most of the course centers around the progeny test and pedigree method of breeding. Students taking this course participate in the college plant selection in pedigree work. Three breeds of poultry, each pedigreed for from seven to twenty years, furnish practice materials. A trip to some college or institution doing experimental work in breeding is required of students taking this course.
2 class hours. 10:00-10:50 M. F.; 2 hours by arrangement.
1 2-hour laboratory period, credit, 3.
Professors Sanctuary and Graham.

78. **II.** Poultry Farm Organization. — For seniors. This course embodies the application of economic and business principles to poultry farming. The place and importance of the various branches of well-organized poultry farms and their relation to each other receive special consideration; also the study of surveys and production costs. A trip covering three or more days will be made to representative successful poultry farms. The expense per student is approximately fifteen dollars. This trip is required of each student taking the course for credit.
1 class hour. Hours by arrangement. 1 2-hour laboratory period, credit, 2.
Prerequisite, Poultry 77. Professor Graham.

80. **II.** Farm Poultry. — For seniors; juniors may elect. For those students who desire a general knowledge of poultry husbandry but who cannot devote more than one term to the subject; it is not intended for students specializing in poultry, and such students are admitted only by special permission. Emphasis is placed on the farm flock and its economic management. Housing, culling, feeding, hatching, rearing, production, marketing, disease control, record keeping and flock management receive special consideration.
2 class hours. 8:00-8:50 M. W.; 2 hours by arrangement.
1 2-hour laboratory period, credit, 3.
Assistant Professor Banta.

81. **I.** 82. **II.** Poultry Problems. — For seniors only. This course consists of individual problems chosen by the students under guidance of the department. The work is of an advanced nature, supplementing that of the regular poultry curriculum. Copy of project outline, indicating the number of credits, must be filed with the department and with the Dean at the opening of the semester. Two hours are required in the second semester. Two additional hours may be elected in the first or second semesters. Hours by arrangement.
Credit, 2 to 4.
Professor Graham.

DIVISION OF HOME ECONOMICS.

Professor Skinner.

Home Economics.

Professor Skinner, Professor Mitchell, Associate Professor Knowlton, Assistant Professor Briggs, Assistant Professor Coolidge, Mrs. Cook.

The home economics courses offered are planned to meet the needs of (1) those students who are interested in education for homemaking as an integral part of

the general education of women; (2) those who are interested in professional or vocational work in which an understanding of home economics is fundamental; (3) those who are interested in preparing for home economics extension service, both junior and adult; (4) those who wish to enter a graduate school leading to professional work. Other departments offer courses planned especially for students in home economics, as follows: Household Equipment, also House Planning and Construction in the Department of Agricultural Engineering; General Design in the Department of Landscape Gardening; Food Preservation in the Department of Horticultural Manufactures; and Amateur Floriculture in the Department of Floriculture.

Elective Courses

1. **I.** Introduction to Home Economics. — For freshmen. A study of women in the modern world and the share which women have had in social progress, in order that each student may recognize the importance of her relationships to her family and community group.

3 class hours. Credit, 3.

Professor Skinner.

2. **II.** Clothing Selection. — For freshmen. A study of the principles of clothing selection in order to assist each student to choose satisfactorily line, color, and texture.

2 class hours. 1 2-hour laboratory period, credit, 3.

Assistant Professor Briggs.

25. **I.** Textiles. — For sophomores. A study of fibers, yarns, and fabrics with the aim of developing good judgment in the buying and using of clothing and house furnishing materials.

1 class hour. 2 2-hour laboratory periods, credit, 3.

Assistant Professor Briggs.

30. **II.** Foods. — For sophomores. A study including fundamental principles and comparative methods of food preparation with emphasis on the nutritional and economic aspects of foods.

1 class hour. 2 2-hour laboratory periods, credit, 3.

Associate Professor Knowlton.

32. **II.** Applied Design. — For sophomores. Applications of the principles of design are worked out in specific problems, using various media. Much opportunity is allowed for individual expression. The estimated cost of materials used is five dollars. Students provide all materials subject to the approval of the instructor.

3 2-hour laboratory periods, credit, 3.

Prerequisite, Drawing 31. Assistant Professor Briggs.

51. **I.** Foods. — For juniors. Advanced food study with especial emphasis on economy in expenditure of money, time, and labor.

1 class hour. 2 2-hour laboratory periods, credit, 3.

Prerequisite, Home Economics 30. Associate Professor Knowlton.

52. **II.** Nutrition and Dietetics. — For juniors. A study of food needs of the body under varying conditions of size, activity, age and health, and the value of different foods in contributing to these needs. Special emphasis is placed on the relationship of the nutritive value of food to its cost.

2 class hours. 2 2-hour laboratory periods, credit, 4.

Prerequisite. Home Economics 51. Associate Professor Knowlton.

61. **I.** Clothing Selection and Construction. — For juniors. A study of art principles as they apply to clothing design. Principles of construction are given through the use of commercial patterns and flat pattern work in the making of garments. Students provide all materials subject to the approval of the instructor.

1 class hour. 2 2-hour laboratory periods, credit, 3.

Assistant Professor Briggs.

62. **II.** Home Furnishing. — For juniors. A study of the fundamental principles which underlie the successful planning and furnishing of a satisfying home. Many applications of these principles are worked out in practical problems. Class trips will be taken at an estimated expense of two dollars.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Assistant Professor Briggs.

75. **I.** Economics of the Household. — For seniors. A study of personal and family standards of living in the modern home, the economic relations of the household, and the use of time, energy, and money as a means to influence the home situation.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Assistant Professor Coolidge.

77. **I. or II.** Home Management Practice. — For seniors. This course provides an opportunity for a student to assume responsibilities involved in managing a home.
Credit, 4.
Assistant Professor Coolidge.

81. **I.** Methods of Teaching Home Economics. — For seniors, by arrangement with the head of the division. A study of educational problems as applied to the teaching of home economics in junior and senior high schools. This course gives credit toward state certification. A few required trips, estimated cost three dollars.
2 class hours. 1 2-hour laboratory period, credit, 3.
Associate Professor Knowlton.

83. **I.** 84. **II.** Problems in Home Economics. — For seniors by arrangement with the Head of the Division. An intensive application of home economics to special problems. For students particularly interested in the teaching of home economics, there may be an opportunity for observation and practice teaching under supervision.
2 class hours. 1 2-hour laboratory period, credit, 3.
The Department.

86. **II.** Child Development. — For seniors. A study of the growth and development of the child, the care of children at various ages, treatment in behavior problems, and the influence of environment in shaping personality. Field trips at an estimated cost of two dollars.
3 class hours. Credit, 3.
Assistant Professor Coolidge.

87. **I.** Advanced Clothing Problems. — For seniors. Costume designing and modeling give opportunity for experimentation in designing. Students provide all materials subject to the approval of the instructor.
1 class hour. 10:00-10:50 Th.; 2:50-4:30 Tu. Th.
2 2-hour laboratory periods, credit, 3.
Assistant Professor Briggs.

89. **I.** Diet Therapy. — For seniors. This course offers a brief outline of the causes, symptoms, and general treatment of the various diseases in which the nutritional condition of the patient has significance. The course includes the dietetic treatment and control of gastro-intestinal disorders, obesity, cardo-vascular-renal diseases, anemia, fevers, diabetes, food allergy and the deficiency diseases. Field trips are planned to the dietetic departments of nearby hospitals.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor Mitchell.

Prerequisite, Home Economics 52; Chemistry 79.

91. **I.** 92. **II.** Institutional Foods and Management. — For qualified seniors interested in institutional work. This includes a study of the principles of

organization, personal management, the administration of the food department, food costs, operating expenses, and the special function and duties of the dietitian. Laboratory work will be at the College Dining Hall and in various other institutions in the vicinity. It is expected that students will enroll for the work of both semesters. Enrollments limited.

1 class hour. 2 2-hour laboratory periods, credit, 3.

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DIVISION OF HORTICULTURE.

Professor Van Meter.

Floriculture.

Professor Thayer, Assistant Professor Hubbard, Mr. Ross.

The courses are intended to give the student a general knowledge of the various fields of floriculture, greenhouse design, construction, heating and management, methods of culture and uses of florists' crops (under glass and outdoors), floral decoration and arrangement, and the marketing of plants and flowers. The department aims primarily to train students so that they may take up (1) various phases of commercial floriculture, (2) positions in nursery establishments, (3) the management of conservatories, (4) private estate work, (5) positions in professional work.

Elective Courses.

26. **II.** Garden Materials. — For sophomores; juniors and seniors may elect. A study of the annuals, biennials, herbaceous perennials, bulbs, bedding plants, and roses that are valuable for use in floricultural or landscape gardening work. Methods of propagation, culture, and uses of the various plants are considered; identification of materials; lectures, assigned readings, and reports.

2 class hours. 1 2-hour laboratory period, credit, 3.
Professor Thayer and Mr. Ross.

51. **I.** Greenhouse Management. — For juniors; seniors may elect. This course is intended to familiarize students with the methods and principles involved in the management of greenhouses and greenhouse crops; history and development of the floricultural industry; preparation of soils; fertilizers; potting; watering; ventilation; control of insects and diseases; methods of plant propagation; forcing of plants. At some time during the semester the members of the class will be required to take a one-day trip to visit large commercial establishments at an approximate expense of five dollars. Lectures, assigned readings, reports, and laboratory practice.

2 class hours. 9:00-9:50 M. F.; 2:50-4:30 F. 1 2-hour laboratory period, credit, 3.
Professor Thayer.

52. **II.** Floral Arrangement. — For juniors; seniors may elect. A study of the principles involving the arrangement and use of cut flowers and plants; funeral designs, basket and vase arrangements, table decorations, home, church, and other interior decorations. A study of color and color harmony as applied to such work. Lectures, assigned readings, reports and laboratory practice. This course is limited to ten students, preference being given to major students in Floriculture and Landscape Architecture.

1 class hour. 8:00-8:50 Th.; 1:00-2:40 M. F.
2 2-hour laboratory periods, credit, 3.
Professor Thayer.

54. **II.** Greenhouse Construction and Heating. — For juniors; seniors may elect. The location, types, arrangement, construction, cost, equipment, heating, and ventilation of greenhouse structures; the drawing of plans and study of specifications. Special emphasis laid on heating problems. Lectures, assigned readings, and problems.

2 class hours. 9:00-9:50 M. F.; 2:50-4:30 F. 1 2-hour laboratory period, credit, 3.
Professor Thayer.

58. **II.** Amateur Floriculture. — This course is intended primarily for major students in the Division of Home Economics and for other women students. Three phases of floriculture will be considered: (1) the arrangement and use of cut flowers for decorative purposes in the home and elsewhere, (2) house plants, methods of propagation, (3) garden flowers and their uses on the home grounds.
2 class hours. 11:00-11:50 Tu.; 1:00-1:45 Th.; Sect. I, 1:00-2:40 W., Sect. II, 1:55-3:35 Th. 1 2-hour laboratory period, credit, 3.
Professor Thayer and Mr. Ross.

75. **I.** 76. **II.** Commercial Floriculture. — For seniors. A detailed study of the cultural methods for the important commercial cut-flower crops and potted plants. The marketing of flowers and plants, including the management of wholesale markets and retail stores, a study of systems of record keeping, cost analysis, inventory methods, and other phases of this important part of the floricultural industry. Trips may be taken to nearby commercial establishments. The lectures are supplemented with textbooks, assigned readings and problems.
2 class hours. 9:00-9:50 Tu. Th.; 1:00-2:40 Tu.
1 2-hour laboratory period, credit, 3.
Assistant Professor Hubbard.

Prerequisite, Floriculture 51.

79. **I.** Conservatory Plants (1938-39). — Alternates with Course 81 for students specializing in floriculture. For juniors and seniors. A study of the foliage and flowering plants used in conservatory work; methods of propagation; assigned readings, reports, and identification of materials.
1 class hour. 1:00-1:45 W.; 1:00-2:40 F. 1 2-hour laboratory period, credit, 2.
Professor Thayer.

81. **I.** Herbaceous Gardens and Borders. — Alternates with Course 79 for students specializing in floriculture; given annually for students specializing in landscape architecture. For juniors and seniors. This course is a continuation of Course 26 with emphasis on the uses of herbaceous materials in various types of plantings. Lectures, assigned readings, planning of borders and gardens.
1 class hour. 10:00-10:50 Th.; 1:00-4:30 F. 1 4-hour laboratory period, credit, 3.
Assistant Professor Hubbard.

Prerequisite, Floriculture 26.

82. **II.** Seminar. — For seniors specializing in floriculture. Presentation and discussion of research work in floriculture and other related fields, reports on assignments by individual members of the class, and the preparation of a thesis dealing with an assigned subject. Seminars are conducted weekly.
1 class hour. 4 laboratory hours, credit, 3.
Professor Thayer.

Forestry.

Professor Holdsworth, Professor Trippensee, Assistant Professor Rich, Mr. Curtis.

The courses in forestry are designed for students who desire a knowledge of the management, regulation and improvement of woodlands of moderate area. They are further intended to develop the place of forest cultivation in land utilization and to be explanatory of the general field of forestry for those who plan to become students in graduate schools of forestry.

The courses in Wildlife Management are designed for students who desire a knowledge of the basic principles of wildlife conservation. Wildlife is a natural resource that is economically conservable and is subject to increase and regulation through scientific management and proper land use. These courses are open to students who have acquired a suitable background of the sciences basic to wildlife management. Before scheduling these courses the student should consult the Professor of Wildlife Management.

Elective Courses.

55. **I.** The Management, Protection and Use of Woodlands. — For juniors and seniors. Methods of determining the volume and value of the forest

growing stock; the determination of growth and yield; the principles of forest regulation and sustained yield; forest protection; forest development and maintenance. The course is presented with especial emphasis on the application of the principles of forestry to New England conditions. Problems in applied forestry are carried out on the Mount Toby Demonstration Forest. Text and assigned readings.

1 class hour. 1 4-hour laboratory and field period, credit, 3.
Professor HOLDSWORTH.

56. **II.** THE PRINCIPLES OF SILVICULTURE AND WOOD PRODUCTION. — For juniors and seniors. The nature of a forest; factors influencing and controlling the growth and development of forest trees and stands; forest effects on site conditions; methods of forest reproduction through silvicultural practice; intermediate cuttings; choice of species for forest use; supplementary seeding and planting; forest sanitation and its relation to silviculture; the products of the forest. The field work in applied forestry is conducted principally on the Mount Toby Demonstration Forest. Visits of inspection are made to certain accessible forests which have been under scientific management for many years.

1 class hour. 1 4-hour laboratory and field period, credit, 3.
Professor HOLDSWORTH.

58. **II.** FOREST ECONOMICS AND POLICY. — For juniors and seniors. The growth and development of forestry from an historic viewpoint; the forest as a natural resource and its place in our economic life; our past and present forest resources; Federal and State forest organization; private forestry; the development of a National Forest Policy. Text, assigned readings. A semester paper, the subject to be selected by the student after conference with the instructor, will be required.

3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Professor HOLDSWORTH.

65. **I.** PRINCIPLES OF WILDLIFE CONSERVATION. — For juniors. This is designed as an orientation course for any student in the College who wishes to get a broad view of the subject. It will cover a general review of the history of the administration of wild life resources as well as an introduction to the various biological and economic and legal problems involved in the handling of wildlife. The course will consist of lectures, reports, and discussions. A semester paper on some present wildlife problem will be required.

3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3.
Professor TRIPPENSEE.

66. **II.** INTRODUCTION TO WILDLIFE MANAGEMENT. — For juniors. This course is designed for students interested in the profession of forestry and wildlife management. It will deal with the vertebrate fauna of the forest in relation to its life requirements, characteristics, and ecological relationships. The course will also deal with problems involved with the production and utilization of forest animal resources in connection with the administration of the forest.

1 class hour. 1:00-1:45 W.; 1:00-4:30 M. 1 4-hour laboratory period, credit, 3.
Professor TRIPPENSEE.

75. **I.** FOREST UTILIZATION. — For seniors. The harvesting of standing timber, its conversion into logs and other wanted forms of forest products, its extraction from the forest, its manufacture, marketing, and distribution. The course is arranged with special reference to the forest utilization problems of the Northeastern forest region.

3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Assistant Professor RICH.

Prerequisite, Forestry 55 or 56.

Horticultural Manufactures.

Professor CHENOWETH, Dr. CLAGUE, Mr. MACLINN.

The courses in Horticultural Manufactures (Food Preservation) have been planned to give the student (1) training in food preservation sufficient to meet

the needs of a general education, and (2) training for technical work in the food industries including business, research, and teaching.

Students who desire the elementary training only as given in (1) above will restrict their work to the first year courses and they will not be required to offer prerequisites other than the required general courses in the sciences. Students who desire to make Horticultural Manufactures their major or specialized subject will be expected to take the full two years' work as outlined, and should consult with the department as to required courses in chemistry and bacteriology.

Elective Courses.

51. **I.** Fruit and Vegetable Products. — For juniors; seniors may elect. This course together with Course 52 gives the student a general elementary knowledge of the science and practice of food preservation. Principles and theories of the various methods of food manufacture are the basis for classroom exercises. The laboratory work during the first semester deals largely with the preservation of the autumn fruits and vegetables, small fruit products, freezing, and dehydration.

1 class hour. 8:00-8:50 Tu.; Sect. I, 1:00-2:40 Tu., 1:55-3:35 Th.; Sect. II, 1:00-2:40 W., 8:00-9:50 S. 2 2-hour laboratory periods, credit, 3.

Professor Chenoweth and Dr. Clague.

52. **II.** Miscellaneous Products. — For juniors; seniors may elect. This is a continuation of Course 51. The laboratory work includes pickles and pickle products, maple products, citrus products, fruit syrups, soups, condiments, and the canning of meats, poultry, and the spring vegetables.

1 class hour. 8:00-8:50 Tu.; Sect. I, 1:00-2:40 Tu., 1:55-3:35 Th.; Sect. II, 1:00-2:40 W., 8:00-9:50 S. 2 2-hour laboratory periods, credit, 3.

Professor Chenoweth and Dr. Clague.

Prerequisite, Horticultural Manufactures 51.

61. **I.** Commercial Practices. — For seniors who specialize in horticultural manufactures. A survey of commercial practices in the manufacture and preservation of food products. This will involve a study of equipment, factory arrangement, sanitation, and government regulations, the operation of types of commercial equipment in quantity production.

1 class hour. Hours by arrangement. 2 2-hour laboratory periods, credit, 3.

Dr. Clague.

Prerequisites, Horticultural Manufactures 51 and 52.

62. **II.** Food Preservation Problems. — For seniors who specialize in horticultural manufactures. This is a continuation of Course 61. The class exercises will deal largely with a survey study of the sources of raw materials, commercial methods of manufacture, packing and distribution of the more common foods, also a study of the more important contributions of research. Laboratory work will include the formation of research projects, interpretation of research data. The use of preservatives, the simple analysis of foods and the commercial practices as applied to preservation of such materials as are available: fish, meats, poultry, and spring vegetables.

1 class hour. Hours by arrangement. 2 2-hour laboratory periods, credit, 3.

Dr. Clague.

Prerequisite, Horticultural Manufactures 61.

71. **I.** 72. **II.** Seminar. — For seniors who specialize in horticultural manufactures. Two seminar sessions are held each week.

2 class hours. Hours by arrangement. Credit, 2.

The Department.

75. **I.** Food Preservation. — For seniors and graduate students. Not open to students who have credit for Horticultural Manufactures 51, 52, or 81. This is a general course in food preservation and intended only for those who desire

a broad general knowledge of the subject because of its cultural or practical value.
1 class hour. 8:00-8:50 Th.; 1:00-2:40 M. F.
2 2-hour laboratory periods, credit, 3.
Mr. MACLINN.

81. **I.** HOME FOOD PRESERVATION. — For junior women; seniors and graduate students may elect. This course covers the general field of food preservation as applied to the home. A textbook is used as a basis for classroom exercises. Laboratory work deals with the canning of fruits, vegetables, meats and poultry; the manufacture of food products including jams, jellies, conserves, marmalades, pickles, fruit butters, etc. The emphasis in both class and laboratory is placed on scientific, economical practices for home food preservation.
1 class hour. 10:00-10:50 Tu., 2:50-4:30 M. F.
2 2-hour laboratory periods, credit, 3.
Professor CHENOWETH and Mr. MACLINN.

82. **II.** SPECIAL PRODUCTS. — For seniors and graduate students. The materials offered in this course are as follows: the home manufacture of fruit preserves, candied and glacéd fruits, fruit pastes, confections, candies, and other specialities. Approximately one-half the semester is devoted to elementary work in candy making.
Sect. I, 1:00-2:40 M. F.; Sect. II, 2:50-4:30 M. F.
2 2-hour laboratory periods, credit, 2.
Professor CHENOWETH and Dr. CLAGUE.

Landscape Architecture.

Professor WAUGH, Professor HARRISON, Professor BLUNDELL, Mr. ROBERTSON, Mr. TRAMPOSCH.

The instruction in this department is aimed at two objectives: first, the contribution to general education; second, the preparation of men for the professional practice of landscape architecture. The former objective seems important from the fact that landscape architecture offers an excellent opportunity for the practical discussion of the principles underlying all the fine arts. In the professional courses students are prepared, as well as time permits, to begin work in landscape architecture which leads through field experience of post-graduate study to permanent establishment in that profession.

DRAWING.

Elective Courses.

25. **I.** FREE-HAND DRAWING. — For students specializing in landscape architecture; others by special arrangement. Lettering; cast drawings; water color rendering for landscape architectural plans; pen-and ink drawing; elementary design.
3 2-hour laboratory periods, credit, 3.
Mr. ROBERTSON.

26. **II.** LANDSCAPE AND ARCHITECTURAL DRAUGHTING. — For students specializing in landscape architecture; others by special arrangement. Elements of drawing for landscape draughting—symbols; geometric shapes; drawing of plans, elevations, and sections; architectural shades and shadows; perspective drawing.
3 2-hour laboratory periods, credit, 3.
Mr. ROBERTSON.

31. **I.** ELEMENTARY DESIGN. — For sophomore women. Elementary principles of design, with applications to costume design, interior decoration, etc.
3 2-hour laboratory periods, credit, 3.
Mr. ROBERTSON.

LANDSCAPE ARCHITECTURE.

Elective Courses.

51. **I.** TOPOGRAPHY AND MAPPING. — For juniors. Reconnaissance, location,

topography, and mapping, covering the special data needed and the methods used in landscape architecture. Must be followed by Course 52.
1:00-2:40 M. W. F. 3 2-hour laboratory periods, credit, 3.
Professor Harrison.

Prerequisites, Drawing 25 and 26.

52. **II.** Elements of Landscape Architecture. — For juniors. Engineering details; drive design, grade design, drainage, play areas, etc. Study of selected designs, examination of completed works, and, when possible, those under construction; field notes or written reports.
1:00-2:40 M. W. F. 3 2-hour laboratory periods, credit, 3.
Professor Harrison.

Prerequisites, Landscape Architecture 51 and either Horticulture 51 or advanced Mathematics.

54. **II.** Garden Design. — For juniors. Fundamental principles of design with application to simple problems in the design of gardens and small home grounds.
1:00-2:40 Tu., 1:55-3:35 Th., 10:00-11:50 S.
3 2-hour laboratory periods, credit, 3.
Professor Waugh.

Prerequisites, Landscape Architecture 51 and concurrently 52.

75. **I.** Theory of Landscape Art. — For seniors and graduates. The general theory and application of landscape study, including an examination of the principles underlying all the fine arts with special reference to art appreciation.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Waugh.

76. **II.** Civic Art. — For seniors. The principles and applications of modern civic art, including land subdivision, city planning, city improvement, rural improvement, and regional planning.
2:50-4:30 M. F., 1:00-2:40 W. 3 2-hour laboratory periods, credit, 3.
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Prerequisites, Landscape Architecture 51, 52.

78. **II.** History of Art. — For juniors and seniors. An historical, appreciative survey of art from earliest times to the present, with special reference to the relations of the fine arts to the problems of daily life.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Mr. Robertson.

79. **I.** Construction and Maintenance (1937-38). — Alternates with Course 83. For juniors and seniors. Detailed instruction in staking out work; methods of construction and planting; organization, reporting, accounting, estimating, etc.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor Harrison.

80. **II.** Literature of Landscape Architecture. — For seniors only. The literature of landscape architecture, gardening, plants, forestry and nature appreciation. Requires extensive readings, oral and written reports and the preparation of assigned theses and bibliographies.
1 lecture hour, 1 conference period. 8:00-8:50 Tu.; 8:00-8:50 or 9:00-9:50 Th.
Credit, 2.
Professor Waugh.

81. **I.** Advanced Design. — For seniors. Grading and planting plans; garden design and planting.
1:00-2:40 Tu., 1:55-3:35 Th., 10.00-11:50 S. 3 2-hour laboratory periods, credit, 3.
Professor Waugh.

Prerequisites, Landscape Architecture 51, 52, and 54.

82. **II.** Advanced Design. — For seniors. A series of problems in the design of estates, parks, and small properties.
1:00-2:40 Tu., 1:55-3:35 Th., 8:00-9:50 S. 3 2-hour laboratory periods, credit, 3.
Professor Harrison.

Prerequisite, Landscape Architecture 81.

83. **I.** Architecture (1938-39). Alternates with Course 79. For juniors and seniors. The history of architectural development, the different historic types, with special reference to the underlying principles of construction and their relation to landscape design. Illustrated lectures, field trips, the study of details, preparation of plates.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor Harrison.

84. **II.** Sketching. — For juniors and seniors. The use and development of technique in water color, pencil, pen and ink sketching of outdoor and indoor scenes.
1:00-2:40 M. F. 2 2-hour laboratory periods, credit, 2.
Mr. Robertson.

Horticulture.

Elective Courses.

1. **I.** Plant Propagation. — For freshmen. This course serves as an introduction to the field of horticulture, emphasizing the methods and underlying principles invloved in the propagation of horticultural plants.
2 class hours. 1 2-hour laboratory period, credit, 3.
Mr. Tramposch.

26. **II.** Plant Materials. — For sophomores. Detailed study of deciduous and evergreen trees, with special reference to the form and character of mature trees, means of identification, natural associations, and uses of the various types of trees in landscape work.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Professor Blundell.

51. **I.** Plant Materials. — For juniors; seniors may elect. Detailed study of shrubs and woody vines, and their identification, with especial emphasis given to their adaptability to the various landscape uses, methods of handling, and care.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Professor Blundell.

Prerequisite, Horticulture 26.

Olericulture.

Professor Snyder, Assistant Professor Tuttle, Mr. Lachman.

The courses in olericulture offer a comprehensive training in the scientific and commercial principles related to the culture and marketing of vegetables. The specific objects of the courses are to train students for (1) the various commercial branches of production and marketing, and (2) the professional fields of research, extension, and teaching.

25. **I.** General Olericulture. — For sophomores; juniors and seniors may elect. A study of the factors affecting the growth of plants which are essential to a basic understanding of the cultural requirements of vegetable crops.
2 class hours. 1 2-hour laboratory period, credit, 3.
Professor Snyder and Mr. Lachman.

51. **I.** Olericulture. — For juniors; seniors may elect. A critical study of the water and nutrient requirement of vegetable plants as applied to irrigation, soils and their preparation, manures, fertilizers, lime, green manures and crop residues.
3 class hours. Hours by arrangement. Credit, 3.
Assistant Professor Tuttle.

52. **II.** Olericulture. — For juniors; seniors may elect. A study of certain environmental factors which influence the culture of vegetables as applied to actual commercial practices.
3 class hours. Hours by arrangement. Credit, 3.
Professor Snyder.

74. **II.** Marketing Practices (1937-38). — For juniors and seniors. A study of the various factors concerned with the harvesting and marketing of vegetable produce, including grades, packs, packages, brands, and federal and state inspection requirements. The Department of Agricultural Economics will present material covering transportation, markets and marketing principles. Given in alternate years.
3 class hours. Hours by arrangement. Credit, 3.
Professors Snyder and Lindsey.

75. **I.** Systematic Olericulture. — For seniors. A detailed study of variety identification; nomenclature and classification; history, variety improvement and seed sources; judging and exhibiting.
1 class hour. Hours by arrangement. 2 2-hour laboratory periods, credit, 3.
Professor Snyder.

76. **II.** Greenhouse Crops and Plant Growing (1938-39.) — For juniors and seniors. A study of the culture of greenhouse crops including cucumbers, tomatoes, lettuce, rhubarb, and mushrooms; the growing of seedling plants both under glass and in the open for local retail or wholesale business. Given in alternate years.
2 class hours. Hours by arrangement. 1 2-hour laboratory period, credit, 3.
Professor Snyder.

78. **II.** Commercial Olericulture. — For seniors. A study of the problems in the commercial production of vegetables: general culture, fertilizers and manures, machinery, labor, harvesting, and marketing. One or two trips to important markets and truck growing sections are required. Twenty-five dollars will cover the cost of these trips.
2 class hours. Hours by arrangement. 1 2-hour laboratory period, credit, 3.
Professor Snyder.

81. **I.** 82. **II.** Seminar. — For seniors. Advanced study of problems relating to vegetable production. Each student will be assigned problems which must be reported to the seminar for discussion.
1 class hour. Hours by arrangement. Credit, 1.
The Department.

Pomology.

Professor Van Meter, Professor French, Assistant Professor Roberts.

The pomology courses offer a comprehensive training in the scientific and commercial principles concerned in the growing and marketing of apples, pears, peaches, plums, cherries, and small fruits. Major fields open to graduates include: (1) practical work in connection with the operation of a fruit farm; (2) teaching in college, high school or secondary schools of agriculture; (3) extension work in county, state, or nation; (4) research work with state or federal connections; and (5) commercial work in connection with the manufacture and sale of such supplies as machinery, packages, and spraying and dusting materials. Supporting courses in science are required. Since these vary with the objective of the student, that objective should be determined as early as possible.

Elective Courses.

26. **II.** Small Fruits. — For sophomores; juniors and seniors may elect. A study of the growing of blackberries, strawberries, currants, blueberries, and grapes, dealing with such questions as varieties, selecting a site for the plantation, soils, fertilizers, pruning, harvesting, and marketing.
2 class hours. 1 2-hour laboratory period, credit, 3.
Professor French.

53. **I.** General Pomology. — For juniors; seniors may elect. A study of the most improved practices in fruit production, including such questions as the selection of orchard sites and soils, laying out and setting the orchard, the structure and growth of fruit plants; the bearing habits, pruning and training of fruits; fertilizers, pollination, and winter injury.
2 class hours. 10:00-10:50 Tu. Th.; 2:50-4:30 F.
1 2-hour laboratory period, credit, 3.
Assistant Professor Roberts.

56. **II.** Spraying. — For juniors; seniors may elect. A detailed study of: (*a*) Spraying materials, their composition, manufacture, and preparation for use; the desirable and objectionable qualities of each material; formulas used, costs, and tests of purity. (*b*) Spraying machinery, including principal types of pumps, nozzles, hose, and vehicles; their structure and care. (*c*) Orchard methods in the application of various materials used, with the important considerations for spraying each fruit and for combating each orchard pest. This course is designed especially to familiarize the student with practical details of actual work in the orchard.
1 class hour. 8:00-8:50 Tu.; 1:00-2:40 Tu., 1:55-3:35 Th.
2 2-hour laboratory periods, credit, 3.
Assistant Professor Roberts.

75. **I.** Systematic Pomology (1938-39). — For juniors and seniors. A study of the more important kinds and varieties of fruits grown in the United States, their relationships and nomenclature. Particular emphasis is placed upon the identification, classification, and value of varieties including a study of the characters of the plant as well as the fruit. Given in alternate years.
1 class hour. 9:00-9:50 Tu.; 1:00-2:40 M. W. F.
3 2-hour laboratory periods, credit, 4.
Professor French.

77. **I.** Commercial Pomology (1937-38). — For juniors and seniors. A critical consideration of the picking, handling, storing, and marketing of fruits, including a discussion of storage houses, fruit packages, methods of refrigeration, grading, and packing. This course also considers the leading American and foreign centers of fruit production as they affect our own fruit industry through competition here or abroad. Given in alternate years.
2 class hours. 9:00-9:50 Tu. Th.; 1:00-2:40 W.
1 2-hour laboratory period, credit, 3.
Assistant Professor Roberts.

81. **I.** 82. **II.** Advanced Pomology. — For seniors. A consideration of the scientific principles governing the growth and behavior of fruit-bearing plants. Special attention is given to a critical survey of the more important research work in the field of pomology.
2 class hours. Hours by arrangement. 1 2-hour laboratory period, credit, 3.
Professor Van Meter.

Prerequisite, Pomology 53.

83. **I.** 84. **II.** Seminar. — For seniors. Advanced study of problems relating to fruit production. Each student is assigned problems which must be reported to the seminar for discussion.
1 class hour. Hours by arrangement. Credit, 1.
The Department.

Plant Breeding.

Elective Courses.

51. **I.** Plant Genetics. — For juniors and seniors. A study of the principles of inheritance as applied to plants, together with a consideration of the methods used and problems involved in the improvement of horticultural crops.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Professor French.

52. **II.** Advanced Plant Breeding. — For juniors and seniors. An advanced study of experimental methods, Mendelian analysis, fluctuating variations, mutations, sterility, disease resistance, etc. Laboratory work in the experimental breeding of plants.
2 class hours. 11:00-11:50 Tu., 1:00-1:45 Th.; 1:00-2:40 F.
1 2-hour laboratory period, credit, 3.
Professor French.

Prerequisite, Plant Breeding 51.

81. **I.** 82. **II.** Special Problems in Plant Breeding. — For seniors. Qualified seniors may carry on advanced study on special topics or undertake such original investigation as time and available material will permit.
Hours by arrangement. Credit, 2.
Professor French.

Prerequisite, Plant Breeding 52.

DIVISION OF PHYSICAL AND BIOLOGICAL SCIENCES.

Professor Gordon.

Bacteriology and Physiology.

Professor Gage, Professor Bradley, Assistant Professor Garvey, Dr. Rakieten.

The courses in bacteriology and physiology have been planned to furnish: (1) general training in these subjects for all college students, (2) training for those interested in agriculture, industries, and domestic science, (3) training for prospective students of human or veterinary medicine and public health, (4) training for teachers and laboratory workers in the biological sciences. The courses in bacteriology include introductory and general courses, and advanced work, most of which precedes the applied bacteriology of agriculture, the arts, industry, domestic science, and public health. The course in physiology includes considerations of modern ideas on this subject in relation to human welfare.

Bacteriology.

Elective Courses.

31. **I.** Introductory and General Bacteriology. — For sophomores who are not majoring in the physical and biological sciences; juniors and seniors may elect. Designed to make micro-organisms real and significant. The laboratory covers the use and proper care of the compound microscope, the preparation of culture media, methods of sterilizing equipment, the isolation and handling of pure cultures, simple and differential staining, studies on classification and cultural and biochemical studies on type species of pathogenic and nonpathogenic bacteria. Individual practice in the isolation and identification of bacterial forms is a required part of the laboratory assignment. The course aims to provide a basis for bacteriological study and interpretation and to furnish such material as will be valuable in understanding agriculture, domestic science, and public health problems.
Sect. I, 1:00-3:35 M. F.; Sect. II, 1:00-3:35 Tu., 1:55-4:30 Th.
2 3-hour laboratory periods, credit, 3.
Professor Bradley and Assistant Professor Garvey.

52. **II.** Advanced Bacteriology. — For juniors; seniors may elect. A continuation of Course 31. The identification and differentiation of bacterial species by morphological, cultural, physiological, and serological studies. The combined courses give to the student not only a comprehensive picture of various forms of existing bacteria but develop a specialized technique for their cultivation, isolation, and identification.
1:00-3:35 Tu., 1:55-4:30 Th. 2 3-hour laboratory periods, credit, 3.
Professor Bradley and Assistant Professor Garvey.

Prerequisite, Bacteriology 31.

61. **I.** Bacteriology. (Public Health.) — For juniors; seniors may elect. Considers the relation of the human body to its environment in the maintenance of health and the production of disease. The administration and organization of

community health, the prevention or control of animal or human diseases of public health significance are considered. A study of special community health problems and the relationship of these problems to social welfare is discussed.
2 class hours. 9:00-9:50 Tu. Th. Credit, 2.
Professor BRADLEY.

62. **II.** BACTERIOLOGY. (Public Health.) — For juniors; seniors may elect. Sanitation and its relation to agriculture, industry, and public health. The microbiological features of air, water, soil, sewage, and refuse; industrial hygiene and the control of municipal and rural sanitary projects are considered.
2 class hours. 9:00-9:50 Tu. Th. Credit, 2.
Professor BRADLEY.

Prerequisite, Bacteriology 31 or 61.

81. **I.** 82. **II.** APPLIED BACTERIOLOGY. — For seniors; juniors may elect. These two courses covering a full year's work are designed to give the student a working knowledge of present-day applied bacteriology. The work in the laboratory is presented in three distinct sections: (1) soil, (2) food, (3) dairy. In soil, such subjects as the number and development of micro-organisms in different soils, factors influencing their growth and activity and changes wrought upon matter in the production of soil fertility, ammonification, nitrification, etc., receive attention. In food, a study of preservation, fermentation, spoilage and methods of sanitary examination are considered. In dairy, emphasis is placed upon modern methods for examining the sanitary quality of milk and milk products. Groups of bacteria normally present, abnormal and normal fermentations, effect of temperature and the rôle of milk in the transmission of disease are some of the subjects receiving special consideration.
For 81, 1:00-3:35 W., 9:00-11:50 S. 2 3-hour laboratory periods, credit, 3.
For 82, 1:00-3:35 M. F.
Professor BRADLEY and Assistant Professor GARVEY.
Prerequisite, Bacteriology 52.

85. **I.** BACTERIOLOGY. (Serology.) — For seniors. This course aims to supplement Course 52 and is planned to complete work essential for the advanced study in bacteriology and physiological science. This course includes the study, preparation and standardization of such biological products as antigens, agglutinins, precipitins, hemolysins, and complement-fixation bodies, and the use of the same in differential bacteriology and disease diagnoses. Consideration is also given to isohemagglutinins and their relation to human blood groups. Class limited to ten students.
1:55-4:30 M. F. 2 3-hour laboratory periods, credit, 3.
Professor GAGE and Dr. RAKIETEN.

Prerequisite, Bacteriology 52.

PHYSIOLOGY.

Elective Courses.

32. **II.** PHYSIOLOGY. — For sophomores. This course presents the subject of physiology from the standpoint of its definition and modern scope. The laboratory demonstrations and practice are planned to meet best the requirements of a preliminary course in physiology. Basic anatomical knowledge essential to physiological interpretations will be considered. Exercises on neuromuscular physiology, blood, the circulatory system, and alimentation are included. This course is suited to the needs of students who elect only one course in physiology.
2 class hours. 1 2-hour laboratory period, credit, 3.
Professor GAGE and Dr. RAKIETEN.

75. **I.** PHYSIOLOGY. — For seniors; juniors may elect. The object of this course is to establish a broad basis for physiological study. The study and use of instruments is emphasized. The correlation of physics, chemistry, and biological science to the interpretation of functional activities is particularly considered. Aspects of nerve muscle physiology, hemodynamics, alimentation, intermediate

metabolism, and the general plan and structure of the body pertaining to each division of the work will be considered.
2 class hours. 1:00-2:40 Tu., 1:55-3:35 Th. 1 2-hour laboratory period, credit, 3.
Professor GAGE and Dr. RAKIETEN.

76. **II.** PHYSIOLOGY. — For seniors; juniors may elect. Physiology of internal and external respiration including studies on calorimetry and basal metabolism. This will be followed by work on the physiology of excretions. An introduction to the physiology of the special senses will be presented. This course is especially planned for students with a broad training in biological subjects.
2 class hours. 1:00-2:40 Tu., 1:55-3:35 Th. 1 2-hour laboratory period, credit, 3.
Professor GAGE and Dr. RAKIETEN.

Prerequisite, Physiology 75.

Botany.

Professor OSMUN, Associate Professor CLARK, Professor TORREY, Assistant Professor DAVIS, Mr. HODGE.

The courses in botany are of three types: (1) those which present the principles of plant life both for their fundamental importance in this and other branches and for their general educational value; (2) those which have for their chief aim direct support of technical courses in agriculture and horticulture; (3) those providing broad, intensive training leading to specialization in the science. Courses in the last group also offer helpful training for students specializing in other sciences and in scientific agriculture.

Required Course.

1. **I** and **II.** INTRODUCTORY BOTANY. — For freshmen. Through laboratory, textbooks, and lantern slides an attempt is made to set forth a body of facts dealing with the morphology and physiology of plants which may serve not only as a foundation for future professional work in biological science, but may be of intrinsic value to the educated layman. The topics of seed germination, ecological adaptations, floral structures, taxonomy, botanical history, cytology, wood-anatomy, plant physiology and plant reproduction, receive appropriate elementary treatment. The lectures attempt to interpret the facts of plant structure and function in the light of the major biological principles.
2 class hours. 2 2-hour laboratory periods, credit, 4.
Professor TORREY and Mr. HODGE.

Elective Couses.

25. **I.** CRYPTOGAMIC BOTANY. — For sophomores; juniors and seniors may elect. Selected forms typifying the slime-molds, bacteria, algæ, fungi, lichens, liverworts, mosses and fernworts. The course has a two-fold purpose: (1) it is intended for students who desire to extend their knowledge to the principal branches of the plant kingdom, thus rounding out a general course of which Course 1 constitutes the first part; (2) it is also planned as an introduction to certain advanced courses for which it is prerequisite.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Professor OSMUN.

Prerequisite, Botany 1.

51. **I.** DISEASES OF VEGETABLES. — For juniors and seniors. Study of the principal diseases of vegetables occurring in field and greenhouse, with especial attention to those important in Massachusetts, and consideration of combative measures. This course is planned and conducted primarily for students interested in vegetable gardening, but those intending to enter any branch of plant industry should find it of interest. Students who desire to extend their knowledge of plant diseases over a wider range of crops may do so by taking, in addition to this, any or all of Courses 52, 53, and 54.
1 class hour. 10:00-10:50 Th.; 10:00-11:50 Tu.
1 2-hour laboratory period, credit, 2.
Assistant Professor DAVIS.

Prerequisite, Botany 1.

52. **II.** Diseases of Fruits. — For juniors and seniors. The plan of this course is similar to that of Course 51, but it is intended primarily for students interested in pomology.
1 class hour. 1:55-2:40 W.; 1:00-2:40 F. 1 2-hour laboratory period, credit, 2.
Assistant Professor Davis.

Prerequisite, Botany 1.

53. **I.** Diseases of Field Crops. — For juniors and seniors. The plan of this course is similar to that of Course 51, but it is intended primarily for students interested in field crops.
1 class hour. 1:00-1:45 Th.; 1:00-2:40 Tu. 1 2-hour laboratory period, credit, 2.
Assistant Professor Davis.

Prerequisite, Botany 1.

54. **II.** Diseases of Floricultural Crops, Ornamentals, Shrubs, and Trees. — For juniors and seniors. The plan of this course is similar to that of Course 51, but it is intended primarily for students interested in floriculture, nursery practice, and forestry.
1 class hour. 8:00-8:50 Tu.; 8:00-9:50 S. 1 2-hour laboratory period, credit, 2.
Assistant Professor Davis.

Prerequisite, Botany 1.

56. **II.** Diseases of Crops. — For juniors and seniors. This is a general course in which representative diseases of the principal crops grown in Massachusetts are studied. The plan of the course is otherwise similar to that of Course 51. It is intended for students majoring in entomology and others who desire a brief, general course of this nature.
1 class hour. 1 2-hour laboratory period, credit, 2.
Assistant Professor Davis.

Prerequisite, Botany 1.

58. **II.** Microtechnique. — For juniors and seniors. A course in the preparation of microscopic mounts including the celloidin and paraffin methods and involving the use of microtomes and of differential stains.
8:00-9:50 Tu. S. 2 2-hour laboratory periods, credit, 2.
Professor Torrey.

Prerequisite, Botany 25.

59. **I.** 60. **II.** Systematic Botany of the Higher Plants (1938-39). — Alternate with Courses 61 and 62. For juniors and seniors. An intensive study of the angiosperms. Lectures deal with the interrelations of the flowering plants and with their ecology, geography, and economic importance. Laboratory work consists of a study of types from the most important natural plant families. Particular emphasis is laid on the flora of Massachusetts. The department herbarium and greenhouses supply material of important tropical forms for study.
2 class hours. 10:00-10:50 M. F.; 1:00-2:40 W.
1 2-hour laboratory period, credit, 3.
Professor Torrey.

Prerequisite, Botany 1.

61. **I.** 62. **II.** The Comparative Anatomy of Green Plants (1937-38). — Alternate with Courses 59 and 60. For juniors and seniors. The lectures deal with the comparative anatomy of green plants from the evolutionary standpoint. Particular emphasis is laid upon the woody forms both living and extinct. Of the latter, the department is fortunate in possessing excellent sets of micro-preparations and lantern slides.
2 class hours. 10:00-10:50 M. F.; 1:00-2:40 W.
1 2-hour laboratory period, credit, 3.
Professor Torrey.

Prerequisite, Botany 25.

63. I. 64. II. Systematic Mycology. — For juniors; seniors may elect. Morphology and development of typical species representing the orders and families of fungi; practice in identification, collection and preservation of fungi; systems of classification; collateral reading.
1 class hour. 10:00-10:50 W.; 2:50-4:30 M. F.
2 2-hour laboratory periods, credit, 3.
Assistant Professor Davis.

Prerequisite, Botany 25.

75. I. 76. II. Plant Pathology. — For seniors. Comprehensive study of diseases of plants; training in laboratory methods and technique, including culture work and artificial inoculation of hosts; miscellaneous diagnosis; study of literature and representative life histories of pathogens. Prepares for civil service, experiment station, and college work.
1 class hour. 8:00-8:50 Th. 6 hours by arrangement.
3 2-hour laboratory periods, credit, 4.
Professors Osmun and Davis.

Prerequisite, Botany 25.

77. I. 78. II. Plant Physiology. — For seniors; juniors may elect. Study of the factors and conditions of (*a*) plant nutrition, including the taking up of water and mineral substances, the assimilation of carbon and nitrogen, and the release of energy due to the processes of dissimilation; (*b*) plant growth, including the influence of internal and external factors on growth, the development of reproductive and vegetable organs; (*c*) plant movements, including those due to the taking up of water, and those of both motile and fixed forms in response to external stimuli. Weekly conferences are held, at which students report on assignments to original sources in the literature.
2 class hours. 9:00-9:50 Tu. Th.; 1:00-2:40 M. F.
2 2-hour laboratory periods, credit, 4.
Associate Professor Clark.

Prerequisites, Botany 25; Chemistry 51.

80. II. Plant Physiology. — For seniors; juniors may elect. A briefer course than Course 77 and 78, designed especially for students in horticulture, agronomy, and floriculture, and aiming to give the underlying principles of plant physiology which will supply the scientific basis for the manifold practices in the various fields of plant culture.
2 class hours. 10:00-10:50 Tu. Th.; 2 hours to be announced.
1 2-hour laboratory period, credit, 3.
Associate Professor Clark.

Prerequisite, Botany 1.

81. I. Plant Ecology. — For seniors. Study of plants in relation to their environment, with special emphasis on the newer field studies, which have given increasing insight into the physical and chemical factors as they influence growth and development in the field and the adaptability of plants to changes in their normal environment. The various types of plant formations and successions are studied, as well as the mutual and antagonistic relations of certain plants.
1 class hour. 8:00-8:50 Tu., 1:00-2:40 W., 8:00-9:50 S.
2 2-hour laboratory periods, credit, 3.
Associate Professor Clark.

Prerequisite, Botany 1.

84. II. The Ferns (1938-39). — For seniors; juniors may elect. Intensive study of the morphology, life-history, and taxonomy of the fern plants, with especial attention to the fern flora of New England. Given in alternate years.
1 class hour. 1:00-1:45 Th.; 1:00-2:40 Tu. 1 2-hour laboratory period, credit, 2.
Professor Osmun.

Prerequisite, Botany 25.

Chemistry.

Professor Ritchie, Professor Chamberlain, Professor Peters, Associate Professor Serex, Assistant Professor Fessenden, Dr. Redmon.

In the courses in chemistry, emphasis is laid on both their educational and their vocational value. The courses in the freshman year deal with fundamental principles and give the student such an understanding of the subject as will enable him to appreciate the relation of chemistry to the other sciences and to agriculture and industry. The more advanced courses, including quantitative analysis, organic, physiological, and physical chemistry, are for those who intend to take up graduate study, to become teachers and workers in the allied sciences, or who desire to follow chemistry as a vocation. Those completing the undergraduate courses are fitted for positions in the agricultural industries — fertilizer, feed, and insecticide manufacture — as well as in other lines of industry, and in the State experiment stations, Federal departments, commercial laboratories, and in high school teaching. Postgraduate students are prepared for positions as teachers in colleges, and for more advanced positions in industry and in the experiment stations.

Required Courses.

1. **I** and **II.** General Chemistry. — For freshmen who have not had chemistry and who begin the subject in college. It presents an introduction to the fundamental chemical laws, together with a study of the typical acid- and base-forming elements and their compounds.

2 class hours. 2 2-hour laboratory periods, credit, 4.
Dr. Redmon.

3. **I** and **II.** General Chemistry. — For freshmen who have had chemistry in high or preparatory school. A study of the fundamental concepts of chemistry. The laboratory work is the central feature of the course, and is supplemented closely by the lectures. The object of the course is to give the student a scientific training as well as to prepare him for advanced courses.

2 class hours. 2 2-hour laboratory periods, credit, 4.
Assistant Professor Fessenden.

Elective Courses.

25. **I.** General Chemistry. — For sophomores. A continuation of Chemistry 1 and 3. A study of ionic equilibrium, oxidation and reduction, the reactions of the ions of some of the common elements and the divising and testing of methods of separating the ions of a few elements.

2 class hours. 10:00-10:50 Tu. Th.; 4 hours to be announced.
2 2-hour laboratory periods, credit, 4.
Associate Professor Serex and Assistant Professor Fessenden.

Prerequisite, Chemistry 1 or 3.

26. **II.** Qualitative Analysis. — For sophomores. A study of the characteristic properties, reactions and the systematic separation and identification of the common cations and anions.

2 class hours. 10:00-10:50 Tu. Th.; 4 hours to be announced.
2 2-hour laboratory periods, credit, 4.
Associate Professor Serex.

Prerequisite, Chemistry 25.

31. **I.** 32. **II.** Organic Chemistry. — For sophomores; juniors and seniors may elect. This is a short course in organic chemistry primarily for Home Economics and Agricultural majors, and for such General Science majors as are not premedical. The course covers the first part of the subject-matter given in Chemistry 51 and 52, but in a less comprehensive manner, and deals primarily with that part of organic chemistry having to do with food and nutrition and agricultural products. Students taking this course may elect subsequently only Chemistry 79 and 88.

2 class hours. 10:00-10:50 Tu. Th.; 1:55-3.35 Th.
1 2-hour laboratory period, credit, 3.
Professor Chamberlain.

Prerequisite, Chemistry 1 or 3.

51. I. 52. II. Organic Chemistry. — For juniors; seniors may elect. A systematic study, both from texts and in the laboratory, of the more important compounds in the entire field of organic chemistry. Especial attention is given to those compounds which are found in agricultural products or are manufactured from them. These include alcohols, acids, esters, fats, carbohydrates, and proteins. In the second semester compounds in the benzene series are considered. The work forms a foundation for courses in physiological chemistry and agricultural analysis, and is especially planned for those majoring in chemistry or the other sciences.
3 class hours. 9:00-9:50 M. W. F.; Sect. I, 1:00-3:35 Tu.; Sect. II, 1:00-3:35 W.
1 3-hour laboratory period, credit, 4.
Professor Chamberlain.
Prerequisite Chemistry 25. Chemistry 26 is prerequisite for those majoring in chemistry.

61. I. 62. II. Quantitative Analysis. — For juniors; seniors may elect. The course includes gravimetric and volumetric analysis. The gravimetric determination of chlorine, sulfur and iron; volumetric analysis with acids and bases; indicators, hydrogen-ion concentration and pH; analysis of limestone; the use of potassium dichromate, permanganate and iodide as reagents; chemical calculations and problems; water analysis.
Sect. I, 1:00-4:30 M. F.; Sect. II, 1:00-4:30 Tu. Th.
4 2-hour laboratory periods, credit, 4.
Professor Peters.
Prerequisite, Chemistry 25. Chemistry 26 is prerequisite for those majoring in chemistry.

75. I. 76. II. Physical Chemistry. — For seniors. A study of the fundamental theories and laws of physical chemistry, together with laboratory work which includes the important methods of physicochemical measurements.
2 class hours. 10:00-10:50 M. F.; Sect. I, 1:00-3:35 M.; Sect. II, 1:00-3:35 F.
1 3-hour laboratory period, credit, 3.
Associate Professor Serex.
Prerequisite, Chemistry 61.

79. I. Physiological Chemistry. — For seniors. Supplementary to Courses 51 and 52. For those who expect to take up scientific work in microbiology, botany, agronomy, animal husbandry, etc., and who have had Courses 51 and 52, it gives acquaintance with the chemistry of the physiological processes in plants and animals, by means of which some of the important organic compounds studied in Courses 51 and 52 are built up in the living organism or are used as food by it. In the lectures, the study of food and nutrition as related to both human and domestic animals is the principal subject. In the laboratory, experimental studies are made of both animal and plant materials and processes.
3 class hours. 8:00-8:50 Tu. Th. S.; 9:00-11:50 Tu.
1 3-hour laboratory period, credit, 4.
———.
Prerequisite, Organic Chemistry.

86. II. Review of General Chemistry. — For seniors. Primarily for students majoring in chemistry; others may elect by permission of the instructor. A knowledge of physical chemistry is desirable. The review of general chemistry is largely theoretical. Some subjects may be enlarged by special lectures, such as atomic structure, Werner's co-ordination theory, crystal structure as shown by X-rays.
2 class hours. 10:00-10:50 Tu. Th. Credit, 2.
Professor Peters.

88. II. History of Chemistry. — For seniors. An historical and biographical study of chemistry and chemists. The aim of the course is: (1) to give the student a comprehensive view of the science as a whole, through a study of the

development of new ideas and the establishment of new theories and laws; and (2) to arouse an enthusiastic interest in the subject and an appreciation of the true spirit of scientific research, through a sympathetic presentation of the work and lives of the great chemists who have been the creators of the chemistry of today. The course will consist of lectures, supplemented by systematic correlated reading and the preparation of reports or essays.

2 class hours. 10:00-10:50 M. F. Credit, 2.

92. **II.** Introduction Research. — For seniors specializing in chemistry. The aim of the course is to give the student an opportunity to learn the purpose and methods of research. To each student is assigned some special subject or problem in one of the following fields of chemistry, viz., analytical, biochemical, inorganic, organic, physical. A careful study of the literature goes hand in hand with the working out of the problem in the laboratory.

Hours by arrangement. 10 laboratory hours, credit, 5.

The Department.

Entomology.

Professor Alexander, Professor Crampton, Assistant Professor Sweetman, Dr. Shaw.

Courses in entomology are for two purposes: (1) The introductory courses aim to give the students a general knowledge of insects, particularly in their relations to man, his crops, his domestic animals, and his health. (2) More advanced courses are intended to train students desiring to specialize in entomology to become United States, State, or experiment station entomologists, teachers, foresters, tree wardens, entomologists, or to occupy other positions where an expert knowledge of insects is called for. The beekeeping courses are offered with the following aims: (1) To meet the increase in vocational opportunities for the production of bees or honey as a business. (2) To study the beekeeping needs of fruit and truck-crop industries and the part that bees play in the pollination of flowers. (3) To acquaint the student with a recreational field of many phases, which can be made profitable.

Entomology.

Elective Courses.

26. **II.** General and Field Entomology. — Primarily for sophomores intending to major in one of the biological sciences; other sophomores, juniors, and seniors may elect. For students who desire some knowledge of insects but cannot give more than one semester to the subject; also an introduction to the later courses for those who intend to follow entomology further. Two lectures throughout the semester are devoted to a brief survey of the entire field of entomology; structure and metamorphosis; the more important methods and materials for control of injurious species; a survey of the more conspicuous and important insects with particular attention to the fauna of New England. A laboratory period will be devoted to the preparation and formation of a collection of insects. Until about April 10th, this work will be done indoors and will consist of lectures and practical work preparatory to the field work after that date. Collections made by the students are studied in later courses.

2 class hours. 1 2-hour laboratory period, credit, 3.

Professor Alexander.

51. **I.** Pests of Special Crops. — For juniors and seniors not specializing in entomology. The laboratory work in this course is chiefly individual. Students specializing in subjects other than entomology, who desire a more complete knowledge of the insects connected with their major lines of work, can obtain it through this course. Work in the laboratory consists of identification, life-history studies and control measures of important insect pests. Work of this nature is available on pests of field crops, market-garden crops, fruits, flowers, shade trees and shrubs, forest trees, household articles, domestic animals, and man.

1 class hour. 10:00-10:50 M.; 1:00-2:40 Tu., 1:55-3:35 Th. 2 2-hour laboratory periods, credit, 3.

Dr. Shaw.

Prerequisite, Entomology 26.

53. I. Applied Entomology. — For juniors specializing in entomology; seniors may elect. The laboratory work is chiefly individual. Studies on the more important insect pests, their life-histories, damage, identification, and methods of control. Each student prepares a bulletin dealing with some specific insect pest or problem in entomolgy. Special attention is devoted to the use of entomological literature, methods of preparing scientific papers, and the general principles of insect control.
1 class hour. 10:00-10:50 W.; 2:50-4:30 M. F.
2 2-hour laboratory periods, credit, 3.
Dr. Shaw.

Prerequisite, Entomology 26.

55. I. 56. II. Classification of Insects. — For juniors specializing in entomology. Laboratory work on the identification of the major orders of insects. In Course 56, the immature stages of insects, with particular stress on their structure and recognition.
3 2-hour laboratory periods, credit, 3.
Professors Alexander and Crampton.

Prerequisite, Entomology 26, accompanying Entomology 57.

57. I. Insect Morphology. — For juniors specializing in entomology, and for a limited number of others having the prerequisite. The lectures treat of the internal and external anatomy of insects, particular stress being placed on those structures needed in classification, for use in the parallel Course 55. In the laboratory, the internal and external anatomy of the more important groups is studied, with emphasis on those characters most used in the determination of insects.
1 class hour. 10:00-10:50 F.; 1:00-2:40 M. W. F.
3 2-hour laboratory preiods, credit, 4.
Professor Crampton.

Prerequisite, Entomology 26.

72. II. Forest and Shade-Tree Insects. — For juniors; seniors may elect. The lecture work deals with the principles and methods of controlling insects which attack shade trees, forests, and forest products. The laboratory periods are devoted to a study of the more important species, their identification, biology, and specific control measures. One afternoon for a field excursion is required.
1 class hour. 9:00-9:50 W.; 1:00-2:40 M. F.
2 2-hour laboratory or field periods, credit, 3.
Professor Alexander.

Prerequisite, Entomology 26; 55, 56, and 57 desirable.

74. II. Medical Entomology. — For juniors. Diseases of man and animals that are transmitted by insects and other arthropods.
1 class hour. 1 2-hour laboratory period, credit, 2.
Professor Crampton.

Prerequisite, Entomology 26.

79. I. Ecology. — For seniors; qualified juniors may elect. Designed for students specializing in entomology and related fields. The work considers the relation of the insect to its environment, covering the physical factors, such as temperature, moisture, light, etc., and the biotic factors, including both terrestrial and aquatic communities. The student is not only shown that organisms do things but why they make definite responses to their environment. Actual measurement of the environmental factors and responses of the organisms in field and laboratory are included.
2 class hours. 10:00-10:50 M. F.; 2:50-4:30 M.
1 2-hour laboratory period, credit, 3.
Assistant Professor Sweetman.

Prerequisite, Entomology 26.

80. II. Insect Control. — The scientific basis of insect control is considered from the chemical, biological, ecological, mechanical, and legislative approaches. Special emphasis is placed on the composition, preparation, applica-

tion and reactions of insecticides, and the use of resistant hosts, micro-organisms and the larger parasites and predators that might be used in the control of insects.
1 class hour. 9:00-9:50 M.; 2:50-4:30 M. F.
2 2-hour laboratory periods, credit, 3.
Assistant Professor SWEETMAN.

Prerequisite, Entomology 26.

81. I. PHYSIOLOGICAL ENTOMOLOGY. — For seniors; qualified juniors may elect. A detailed consideration is given to the organ systems, showing the functions such as nutrition, respiration and growth, and the relationship of physiology to behavior. A portion of the laboratory time will be devoted to assigned individual problems, which are conducted on a research basis. These problems may deal with any phase of insect biology and control.
1 class hour. 10:00-10:50 W.; 1:00-2:40 W.; 2:50-4:30 F.
2 2-hour laboratory periods, credit, 3.
Assistant Professor SWEETMAN.

Prerequisite, Entomology 26.

87. I. 88. II. SPECIAL PROBLEMS IN ENTOMOLOGY. — For seniors and graduate students. Problem work in many fields, as apiculture, biological control and insectary practice, insecticides, morphology, and classification. Intended primarily to introduce qualified students to research methods in some branch of entomology. Excess departmental credits are necessary for election.
Hours by arrangement. Credit, 1, 2 or 3.
The DEPARTMENT.

Prerequisites, Entomology 26, 53, 55, 57, and should be preceded or accompanied by any other courses in the restricted field of the problem.
Prerequisite, Entomology 26.

90. II. EVOLUTION. — For seniors, juniors may elect. In order to demonstrate the universal scope and operation of the laws of evolution, the course includes a brief sketch of the probable origin and evolution of matter as viewed in the light of modern physical and chemical research; the evolution of the solar system, leading to the formation of the earth; the changes in the earth, preparatory to the production of life; the physical and chemical basis of life: the probable steps in the formation of living matter, and the theories concerning it; the evolution of living things; the developmental history of man, and of the races of mankind; the evolution of human intelligence, languages, culture, institutions, etc., and man's probable future in the light of his past development. Especial consideration is given to the factors of evolution, the basic principles of heredity, variation, and similar topics, with particular reference to their application to human welfare; and the recent contributions in the field of entomology to the advancement of our knowledge of these fundamental principles are briefly reviewed.
2 class hours. Credit, 2.
Professor CRAMPTON.

APICULTURE.

Elective Courses.

66. II. INTRODUCTORY BEEKEEPING. — For juniors and seniors. The laboratory work consists of a study of beekeeping equipment and the methods of assembling this material; a study of pollen and honey plants; spring management. There will be assigned readings in conjunction with the above. The lectures are intended to give the student a broad grasp of the entire field of beekeeping, considering such subjects as history; statistics of beekeeping in America; the races of bees; methods of management; bee-diseases; pollination; queen-rearing.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Dr. SHAW.

85. I. ADVANCED BEEKEEPING. — For seniors. The laboratory work consists of fall management, care of the honey crop, preparation of colonies for wintering, bee-diseases, and some simple types of biometrical problems. The lectures

consider, among other things, the physical and chemical characteristics of honey and wax; chemical tests to detect adulteration of honey; bee-diseases; and biometry. There will be assigned readings covering important work and problems in beekeeping.

2 class hours. 1 2-hour laboratory period, credit, 3.
Dr. Shaw.

Prerequisite, Entomology 66.

Zoölogy and Geology.

Professor Gordon, Professor Vinal, Assistant Professor Warfel*, Assistant Professor Woodside, Mrs. Shaw.

The offerings in Zoölogy comprise: (1) two elementary courses, one dealing with the basic principles of animal biology, the other affording an introduction to the more important classes of non-vertebrated animals; (2) several courses of a somewhat advanced nature designed for students who are preparing for medicine, or who wish to specialize in zoölogy or biology.

The offerings in geology are not at present planned for specialization in this field. Each course is distinct and is designed to furnish an introduction to some phase of earth science. Geology 28 is recommended for those who wish only a single course in physical geology. It is also desirable as a preparation for any of the other courses in geology. Course 52 logically precedes the study of petrology, or the science of rocks.

Zoölogy.

Elective Courses.

25. I. Elements of Zoölogy. — For sophomores; juniors and seniors may elect. This course or its equivalent is generally prerequisite to all other courses in zoölogy.. It consists of an elementary treatment of the principles of animal biology, and provides a measure of preparation for such subsequent studies as assume some acquaintance with the phenomena of animal life.

2 class hours. 1 2-hour laboratory period, credit, 3.
Professors Gordon and Woodside, and Mrs. Shaw.

26. II. Forms of Invertebrate Animals. — For sophomores; juniors and seniors may elect. Required for graduation of students who intend to specialize in entomology, except that a student in entomology may substitute for Zoölogy 26 a year's work in Zoölogy 69 and 70. This course is designed to give a substantial introduction to the more important classes of non-vertebrated animals. It is intended for students of zoölogy, entomology, and general biology, and is recommended as a preparatory course for historical geology. See descriptions of Courses 69, I, and 70, II, for those who plan to specialize in zoölogy.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Prerequisite, Zoölogy 25. Assistant Professor Woodside.

50. II. Elements of Histology and Microscopic Technique. — For juniors; seniors and graduate students may elect. The course comprises (1) an elementary study of animal tissues, (2) a consideration of the principles and methods involved in microtechnique, (3) a series of practical exercises in preparing animal tissues for microscopic examination.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Prerequisite, Zoölogy 25. Miss Morse.

65. I. 66. II. Comparative Vertebrate Zoölogy. — For juniors, seniors, and graduate students. The work is arranged to run through the year and deals primarily with features of adult anatomy, with only a minimum of embryology (see Courses 75. I, and 76. II). A year's work is recommended for those who wish a broad knowledge of comparative vertebrate zoölogy, and is required of those who specialize in zoölogy. Premedical students will find a full year's work in comparative anatomy most helpful, but may elect only one semester, either 65. I, or 66. II, if the requirements for admission to medical school may thus be satisfied. The laboratory work in Course 65. I, is devoted chiefly to the dissection

*Absent on leave for the year 1937-38.

of the dogfish; that in Course 66. II, to mammalian anatomy. A knowledge of vertebrate zoölogy is very helpful in the study of historical geology.
1 class hour. 9:00-9:50 Th.; Sect. I, 1:00-2:40 M. F.; Sect. II, 1:55-3:35 Th. 10:00-11:50 S. 2 2-hour laboratory periods, credit, 3
Prerequisite, Zoölogy 25. The Department.

69. I. 70. II. Comparative Invertebrate Zoölogy. — For juniors, seniors, and graduate students. These courses provide a broad survey of the field of invertebrate zoölogy. Marine, fresh water, terrestrial and parasitic forms are included. Fossil types are briefly considered. The work is planned to run through the year, but students who have had Zoölogy 26 may elect either Course 69 or 70 and the work will be adapted to their needs. For students who have not had Zoölogy 26 and who are specializing in zoölogy both Courses 69 and 70 are required.
1 class hour. Hours by arrangement. 2 2-hour laboratory periods, credit, 3.
Prerequisite, Zoölogy 25. Mrs. Shaw.

75. I. 76. II. Vertebrate Embryology. — For seniors and graduate students; juniors may elect with permission of instructor. The study of vertebrate embryology generally assumes a knowledge of comparative vertebrate anatomy. The work is arranged to run through the year. Students may elect Course 75 without continuing Course 76, but may not elect Course 76 without having had Course 75 or its equivalent.
1 class hour. 10:00-10:50 Th.; 1:00-2:40 M. F.
2 2-hour laboratory periods, credit, 3.
Prerequisite, Zoölogy 25. Assistant Professor Woodside.

80. II. Ornithology. — For juniors; seniors and others may elect. The orders and ordinal characters of birds; families and family characters of Passerine birds; origin and relationships, adaptative radiation, migrations, distribution, and habits of birds. The work is conducted by means of lectures, practical exercises in the museum, assigned reading, and studies in the field.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Prerequisite, Zoölogy 25. The Department.

85. I. Classes of Arthropods Other than Insects. — For seniors; juniors may elect. Arthropods are studied from the phylogenetic standpoint, with especial reference to their relationship to the origin and evolution of insects.
1 class hour. 10:00-10:50 Tu.; 1:00-2:40 Tu., 1:55-3:35 Th.
2 2-hour laboratory periods, credit, 3.
Prerequisite, Zoölogy 25. Professor Crampton.

91. I. 92. II. Special Problems in Zoölogy. — For seniors and graduate students. Qualified graduate students and seniors who have met departmental requirements for specialization in the field of zoölogy may arrange for work on a special problem in zoölogy.
Hours by arrangement. Credit, 3.
Prerequisite, Zoöogy 25. The Department.

Recreational Planning.

51. I. 52. II. Field Studies in Natural Science. — For juniors and seniors specializing in Recreational Planning. A course based on the physical geography, flora, and fauna of the region with special emphasis on methods, skills, and techniques of leadership in nature recreation. As far as practical the course will be held in the field.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Dr. Vinal.

Geology.

Elective Courses.

Each of the courses described below is distinct. Course 28 is recommended for those who plan to take only one course in physical geology. It is also desirable

as a first course for those who plan to take any of the other courses in geology. Course 52. II, logically precedes the study of petrology, or the science of rocks.

28. **II.** Introductory Geology. — For sophomores; juniors and seniors may elect. This is a general course in physical geology. It deals in an elementary way with the different classes of rocks, and treats more fully of geological agents and processes, and the history of development of land forms.
2 class hours. 1 2-hour laboratory period, credit, 3.
Professor Gordon.

52. **II.** Descriptive and Determinative Mineralogy. — For juniors; seniors and graduate students may elect. This course deals with many of the common or useful minerals and involves the consideration of their composition, crystal forms, occurrence, and economic uses, if any. The laboratory work consists of the study of the physical properties or characters of various minerals as a means of sight recognition, and simple tests, including the blowpipe, for their determination.
1 class hour. 1:55-2:40 W.; 1:00-2:40 Tu.; 1:55-3:35 Th.
2 2-hour laboratory periods, credit, 3.
Professor Gordon.

61. **I.** Elements of Petrology. — For seniors; juniors and graduate students may elect. The various rock-forming minerals are first reviewed. Then follows a discussion of the different kinds of igneous, sedimentary, and metamorphic rocks, with consideration of their petrographic distinctions, modes of occurrence, and structural features.
1 class hour. 1:55-2:40 W.; 1:00-2:40 Tu.; 1:55-3:35 Th.
2 2-hour laboratory periods, credit, 3.
Professor Gordon.

62. **II.** Historical Geology. — For seniors; juniors and graduate students may elect. In this course the principal events in the physical history of North America are reviewed in chronological sequence, with a survey of the plant and animal life of the past.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Professor Gordon.

Mathematics and Civil Engineering.

Professor Machmer, Associate Professor Moore, Assistant Professor Miller, Assistant Professor Boutelle, Assistant Professor Marston, Mr. Swenson.

The work of the freshman year is required. It is intended to furnish the necessary drill and groundwork needed for many of the scientific and practical courses of other departments. Thoroughness and accuracy are insisted upon. The advanced work in mathematics is taught from a practical standpoint, and many of its applications to other subjects are given. The courses in surveying and civil engineering are given to furnish the groundwork for a professional career. Special emphasis is given to the subjects bearing on highway construction and maintenance.

Required Courses.

1. **I.** Algebra and Trigonometry. — For freshmen. A thorough study of the quadratic equation, simultaneous quadratics, systems of linear equations, determinants, complex numbers, elements of the theory of equations, exponential equations, logarithms; generalized binominal theorem, permutations and combinations, probability; trigonometric functions and elementary relationships and the solution of right triangles.
3 class hours. Credit, 3.
Professors Machmer, Moore, Miller, Boutelle, Marston, and Mr. Swenson.

2. **II.** Trigonometry and Analytics. — The development of trigonometric formulas, transformations, trigonometric equations, the law of sines, the law of cosines, practical applications in solving oblique triangles. Representation of

loci by graphs and equations in Cartesian and polar coordinates; analysis of equations to discover properties of curves; a detailed study of the conic sections — the straight line, circle, parabola, ellipse, and hyperbola.
3 class hours. Credit, 3.
Professors Machmer, Moore, Miller, Boutelle, Marston, and Mr. Swenson.

Elective Courses.

26. **II.** Plane Surveying. — For sophomores; juniors and seniors may elect. The elements of land surveying, including the adjustment and use of the usual instruments. Textbook, lectures, and field work.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Associate Professor Moore.

29. **I.** Differential Calculus. — For sophomores and juniors; seniors may elect. The basic ideas and methods of the differential calculus. The course aims to give the student a realization of the power of the calculus as an instrument of analysis.
3 class hours. Credit, 3.
Associate Professor Moore, Assistant Professors Miller and Boutelle.
Prerequisite, Mathematics 2.

30. **II.** Integral Calculus. — For juniors; seniors may elect. A continuation of Mathematics 29 into the field of the integral calculus, with special emphasis on applications to problems.
3 class hours. Credit, 3.
Associate Professor Moore and Assistant Professor Miller.
Prerequisite, Mathematics 29.

53. **I.** Applied Mechanics. — For juniors and seniors. The following topics are considered in the study of statics and kinetics; colinear, concurrent, non-concurrent and parallel force systems in a plane and in space; static friction problems; first and second moments; rectilinear and curvilinear motions. The free-body method of analysis is emphasized. Algebraic and graphical solutions are determined.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Assistant Professor Marston.
Prerequisites, Physics 25; Mathematics 29.

55. **I.** Mathematics of Finance. — For juniors, seniors may elect. The mathematical principles of simple and compound interest, annuities, depreciation, valuation of bonds, insurance. The development and application of aids to computation in problems arising from financial transactions.
3 class hours. 10:00-10:50 Tu. Th. S. Credit, 3.
Prerequisite, Mathematics 1. Assistant Professor Miller.

56. **II.** Strength of Materials. — For juniors and seniors. The following topics are considered: elementary stresses and strains; combined stresses; riveted joints; torsion; shear and bending moments; stresses and deflections in beams; statically indeterminate beams; columns; reinforced concrete beams. The physical properties of materials of construction will be discussed during the class period.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Assistant Professor Marston.
Prerequisite, Mathematics 53.

57. **I.** Highway and Railroad Location. — For juniors; seniors may elect. Theory and practice in the location of highway and railroad curves and in the measurement of earth work on construction projects.
1 class hour. 9:00-9:50 Tu.; 1:00-2:40 W.
1 2-hour laboratory period, credit, 2.
Assistant Professor Marston.
Prerequisite, Mathematics 26, Surveying.

58. **II.** Highway Construction. — For juniors; seniors may elect. Types of roads and pavements, methods of construction and maintenance, road materials, special machinery, costs and economic comparisons.
1 class hour. 1 2-hour laboratory period, credit, 2.
Assistant Professor Marston.
Prerequisite, Mathematics 26, Surveying.

60. **II.** Spherical Trigonometry. — For juniors and seniors. A study of the trigonometry of the sphere with applications to astronomy and navigation.
1 class hour. Credit, 1.
Associate Professor Moore.
Prerequisite, Mathematics 30.

62. **II.** Statistics. — For juniors; seniors may elect. The fundamental mathematical principles of statistical analysis. A discussion of averages, measures of dispersion, frequency and probability functions, correlation, random sampling. This course in conjunction with Agricultural Economics 79 should provide the student with a good understanding of the application of the statistical method and the interpretation of results.
3 class hours. 10:00-10:50 Tu. Th. S. Credit, 3.
Assistant Professor Boutelle.
Prerequisite, Mathematics 30.

63. **I.** Engineering Drawing. — For juniors and seniors. Elements of engineering drawing, lettering projections, interpreting of working drawings, tracings, pictorial representation of machine parts, and engineering problems.
1:00-2:40 M. W. F. 3 2-hour laboratory periods, credit, 3.
Mr. Swenson.

64. **II.** Descriptive Geometry. — For juniors and seniors. Orthographic projection; profile plane; location of points; lines and planes, revolution of points; points on lines; planes and angles; plane, cylindrical, conical, and warped surfaces; surfaces of revolution; intersection of surfaces; tangent lines and planes. Textbook, lectures, and drafting.
2 class hours. 9:00-9:50 Tu. Th.; 1:00-2:40 Tu.
1 2-hour laboratory period, credit, 3.
Mr. Swenson.

75. **I.** Hydraulics. — For juniors and seniors. Hydrostatics, which deals with pressure gages, pressures on surfaces and immersed and floating bodies, is first considered. Hydrokinectics, which includes flow through orifices and tubes, over weirs and dams, through pipes and open channels, is dealt with next. Hydrodynamics, which considers turbines and pumps, will be taken up briefly. Where possible, current practical problems in hydraulics, such as flood control, hydroelectric power development, and erosion control are discussed during the class period.
2 class hours. 10:00-10:50 M. F. 2 hours by arrangement.
1 2-hour laboratory period, credit, 3.
Assistant Professor Marston.
Prerequisites, Physics 25; Mathematics 29.

76. **II.** Water Supply. — For juniors and seniors. This course considers the engineering aspects of public water supply systems and includes the following topics: quantity of water required; sources of supply; rainfall, evaporation and percolation; flow of streams; ground water; quality of water supplies; waterworks construction; intake works; dams; methods of purification; distribution systems.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Assistant Professor Marston.
Prerequisite, Mathematics 75 or permission of the instructor.

91. I. 92. II. Differential and Empirical Equations. — For seniors. A course dealing with the methods of solution of the simpler forms of differential equations and their applications, and the determination of empirical equations from observed data. Textbook and lectures.
2 class hours. 8:00-8:50 M. F. Credit, 2.
Associate Professor Moore.

Prerequisite, Mathematics 30.

Astronomy and Meteorology.

Elective Course.

58. II. Descriptive Astronomy and Meteorology. — For juniors and seniors. A brief non-mathematical descriptive course which presents a general survey of the elementary facts and principles of astronomy and meteorology. The chief objective is to make the student alive to the beauty and the order that is revealed in the sky. The course deals with a consideration of the atmosphere through which astronomical phenomena are observed; fundamental conceptions of the celestial sphere, the solar system, stars, constellations, and nebulæ. Two hours of observation and discussion may be substituted for any lecture period.
2 class hours. 8:00-8:50 Tu. Th. Credit, 2.
Assistant Professor Lanphear.

Physics.

Professor Powers, Assistant Professor Alderman, Dr. Ross.

The courses in this department present a basic study of the physical laws and phenomena of nature with special emphasis on the applications of the principles studied. These courses furnish satisfactory training for pre-medical students and for prospective teachers in secondary schools. Courses 25 and 26 constitute a study in general physics. The other courses afford opportunity for more advanced and individual work.

Elective Courses.

25. I. Mechanics and Heat. — For sophomores; juniors and seniors may elect. This course is largely a study of the following and related topics: equilibrium of bodies; forms of energy and work; motion; fluids; surface tension; molecular phenomena; elasticity; wave-motion; thermometry; expansion; hygrometry; transmission of heat; changes of state; radiation.
2 class hours. 1 2-hour laboratory period, credit, 3.
The Department.

26. II. Light and Electricity. — For sophomores; juniors and seniors may elect. Includes wave-theory of light; optical instruments; analysis of light; interference; polarization; magnetism; electrostatics; production and properties of electric currents; electrical appliances and machines; oscillatory circuits; vacuum tubes, and related topics.
2 class hours. 1 2-hour laboratory period, credit, 3.
The Department.

Prerequisite, Physics 25.

28. II. Sound. — For sophomores; juniors and seniors may elect. An elementary course in sound and acoustics. One laboratory period may be substituted for one class hour.
3 class hours. Credit, 3.
Assistant Professor Alderman.

Prerequisite, Physics 25.

51. I. 52. II. Magnetism, Electricity, Photo-electricity, Thermionics, and Applications. — For juniors and seniors. Course 51 deals largely with direct currents, Course 52 with alternating currents, applications of thermionics, and photo-electricity. These courses are planned to give the student a good training in theory and methods of measurement in the subjects indicated, which

are useful in many fields of investigation. Modern methods are stressed and instruments of precision are used.
2 class hours. 8:00-8:50 Tu. Th.; Sect. I, 10:00-11:50 Tu.; Sect. II, 1:00-2:40 W.
1 2-hour laboratory period, credit, 3.
Professor POWERS.
Prerequisites, Physics 26 and Mathematics 29 for Course 51; Physics 51 for Course 52.

53. I. OPTICS. — For juniors; seniors may elect. An intermediate course in the theory of light. Work in geometrical and physical optics is done. Precision instruments are used in the laboratory.
2 class hours. 10:00-10:50 Tu. Th.; 1:55-3:35 Th.
1 2-hour laboratory period, credit, 3.
Assistant Professor ALDERMAN.
Prerequisite, Physics 26; Mathematics 29.

54. II. THERMODYNAMICS. — For juniors; seniors may elect. A study of heat exchanges and energy changes due to heat in systems of matter. The subject material and experimental methods are useful in other branches of science.
2 class hours. 10:00-10:50 Tu. Th.; 1:55-3:35 Th.
1 2-hour laboratory period, credit, 3.
Assistant Professor ALDERMAN.
Prerequisite, Physics 26; Mathematics 29.

56. II. MECHANICS. — For juniors and seniors. Development of the fundamental concepts of dynamics with applications to particles and rigid bodies in translation and rotation. One laboratory period may be substituted for one class hour.
3 class hours. Credit, 3.
Dr. ROSS.
Prerequisites, Physics 26; Mathematics 29.

75. I. 76. II. ADVANCED EXPERIMENTAL WORK IN SELECTED TOPICS. — For seniors. These courses are largely experimental, and the subject matter is adapted to the needs of the individual student. The research viewpoint is emphasized.
3 2-hour laboratory periods, credit, 3.
Professor POWERS.
Prerequisites, Physics 25, 26; 51 and 52; or 53 and 54; Mathematics 29 and 30.

85. I. 86. II. MODERN PHYSICS. — For seniors. Typical subjects studied are theories of the atom, radiation, quantum theory, spectra, X-ray analysis, etc.
3 class hours. Credit, 3.
Professor POWERS.
Prerequisites, Physics 25, 26, 51, 53, 54, or equivalent; Mathematics 29 and 30.

Veterinary Science.

Professor LENTZ.

The courses in veterinary science are arranged to meet the needs of students who expect to follow practical agriculture; of prospective students of veterinary and human medicine, and of teachers and workers in the biological sciences.

Elective Courses.

51. I. VETERINARY HYGIENE. — For juniors; seniors may elect. Students are acquainted with the influences which air, water, feed, disposal of animal waste material, etc., may have upon the health of animals, and upon the health of those who use both animals and animal products.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor LENTZ.

75. I. COMPARATIVE VETERINARY ANATOMY. — For seniors; juniors may elect. The structure of the horse is studied and the structures of other farm animals are compared with it. This is a lecture and demonstrational course.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor LENTZ.

76. **II.** General Veterinary Pathology. — For seniors; juniors may elect. A study of fundamental, general pathological conditions; inflammation, fever, etc., and application of principles to etiology, pathogenesis, and prophylaxis of communicable and non-communicable diseases of domesticated animals.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Professor Lentz.

88. **II.** Avian Pathology. — For seniors. Consists of lectures devoted to principles of pathology, with specific application to avian diseases. Etiology, pathogenesis, and prophylaxis will be emphasized.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Prerequisites, Bacteriology 31 and 52; Physiology 75 and 76. Professor Lentz.

DIVISION OF SOCIAL SCIENCES.

Professor Mackimmie.

Economics.

Professor Cance, Assistant Professor Gamble, Assistant Professor Smart, Assistant Professor Rohr, Dr. Larcom.

The aims of the department are two: (1) to give the student an understanding of economic theory and of the application of economics to the organization of Society; (2) to provide students with the elementary training necessary for business vocations.

Required Courses.

25. **I** and **II.** Elements of Economics. — For sophomores. Definitions and introductory principles of production, exchange, and the financial organization of society, with a short survey of the economics of distribution and the use of wealth and income.
3 class hours. Credit, 3.
The Department.

Elective Courses.

26. **II.** Elements of Distribution. — For sophomores. A continuation of Course 25 with emphasis on the economics of wages, rent, interest, ownership, and profits. In general, a more detailed study of the theory of wealth distribution and the social forces concerned with valuation and the apportionment of wealth and income arising from economic activity.
3 class hours. Credit, 3.
Assistant Professor Gamble.

Prerequisite, Economics 25.

51. **I.** Economics of Business and Industry. — For juniors; seniors may elect. The application of Economics to business. A presentation of the industrial relationships and the principles upon which the production of economic goods is based. Problems arising from the development of mass production, competitive enterprises, diversification of industry and social control; working relations. Some study will be made of the corporation, its effectiveness, and its social influences.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Cance.

52. **II.** Money, Banking, and Credit. — For juniors; seniors and graduate students may elect. The development of the monetary and banking systems of the United States; the operation of various types of financial institutions; the use of credit in economic production and the development, organization, operation and social effects of agricultural and industrial credit institutions.
3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3.
Assistant Professor Gamble.

53. **I.** Marketing and Marketing Problems. — For juniors; seniors and graduate students may elect. A study of the forces and conditions which determine prices and the mechanism, methods, and problems concerned with transporting, storing, and distributing economic goods. Supply and demand, deter-

mination and course of prices, terminal facilities, the middleman system, speculation, protective legislation, the retail market, and direct sales are considered. The characteristics and possibilities of the New England market are given special attention. Lectures, readings, assigned studies, and field work.
3 class hours. 10:00-10:50 Tu. Th. S. Credit, 3.
Professor CANCE.

54. **II.** CORPORATION FINANCE (1938-39). Alternates with Course 78. — For juniors and seniors. Types of business organization and their essential features; the nature and growth of the corporation and its economic and social significance; types of securities used for raising capital; promotion; financial structure of various types of concerns; administration of income; control; holding company finance; corporate failure and reorganization are considered.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Dr. LARCOM.

55. **I.** ECONOMICS OF CONSUMPTION. — For juniors; seniors and graduate students may elect. The purpose of this course is a consideration of the importance of consumption in modern industry and commerce. It includes a study of the laws of consumption, standards of living, sources and factors determining family incomes, and of the administration of these incomes as shown by the expenditures of the nation and of various groups. The relation of consumption to the problems of population and to the development of society is also studied. Lectures, assigned readings, and class discussions.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Dr. LARCOM.

58. **II.** BUSINESS LAW. — For juniors, seniors may elect. This course consists of a particular study, drawing, reading, and interpretation of contracts and sales; with specific problem work. Fundamentally, it is a course in logical reasoning using legal principles as its basic material. Wills, commercial paper, carriers, real estate agency, public and personal rights presented by lecture during the course.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Assistant Professor SMART.

75. **I.** CURRENT ECONOMIC PROBLEMS. — For seniors and graduate students; juniors may elect. An advanced course for those desirous of studying more intensively some current economic problems. Studies in economic philosophy and the economic aspects and consequences of progress in the physical and biological sciences, current economic questions, agricultural legislation, and government aids and subsidies are some of the problems discussed. Particular attention will be given to economic problems relating to New England. Students will be encouraged to pursue lines of individual interest.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor CANCE.

76. **II.** PRINCIPLES OF TRANSPORTATION. — For seniors and graduate students; juniors may elect. The development of highway, waterway, and railway transportation, and its relation to the agricultural and industrial development of the country; the principles governing the operation and control of transportation agencies; present-day problems relating to the shipment of farm and industrial products, rates, fatalities, and services; methods of reducing wastes in transportation; the economics of the good roads movement and of motor transportation. Lectures, text, and field work.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor CANCE.

77. **I.** ECONOMICS OF INTERNATIONAL TRADE (1937-38). Alternates with Course 79. — For seniors; junior and graduate students may elect. A study of the principles and practices of international trade, including a survey of historical trends of the foreign trade of the United States; the business methods

of foreign traders; foreign exchange; and the efforts made by governments and business groups to influence foreign trade.
3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3.
Assistant Professor GAMBLE.

78. **II.** PUBLIC FINANCE (1937-38). Alternates with Course 54. — For juniors and seniors. Principles of public revenues and expenditures with special emphasis on the systems and problems of taxation.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Assistant Professor GAMBLE.

79. **I.** LABOR PROBLEMS (1938-39). Alternates with Course 77. — For seniors. An analysis of the background and character of the modern labor problem with special reference to the United States. Topics to be considered include the problems of wages, hours, working conditions and unemployment; the trade union movement; and some agencies for the promotion of industrial peace.
3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3.
Assistant Professor GAMBLE.

80. **II.** ECONOMIC THEORY AND SOCIAL PROGRESS (1937-38). — For seniors and graduate students. This course logically follows Economics 75 and is designed to point out the principles and philosophies underlying current economic thought and social practices. Given in alternate years.
3 class hours. Credit, 3.
Professor CANCE.

81. **I.** ELEMENTARY BUSINESS ACCOUNTING. — For seniors; juniors may elect. This course aims to give the student an elementary working knowledge of the principles underlying the accounting system in the gathering, analysis, and interpretation of accounting data, and the methods used in accounting and preparing the usual types of business statements for individual proprietorship businesses and partnerships. The managerial uses of accounting as a means of business control are the keynote of the course.
1 class hour. 1:55-2:40 W.; 1:00-2:40 Tu.; 1:55-3:35 Th.
2 2-hour laboratory periods, credit, 3.
Dr. LARCOM.

82. **II.** ADVANCED BUSINESS ACCOUNTING. — For seniors. This course covers the problems of partnership and corporation accounting. Considerable time is spent on problems in amortization, depreciation, and the preparation, analysis, and interpretation of financial statements.
1 class hour. 1:55-2:40 W.; 1:00-2:40 Tu.; 1:55-3:35 Th.
2 2-hour laboratory periods, credit, 3.
Dr. LARCOM.

85. **I.** LEGAL ASPECTS OF ECONOMIC TRANSACTIONS. — For seniors and graduate students. A continuation of Course 58.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Prerequisite, Economics 58. Assistant Professor SMART.

91. **I.** 92. **II.** SEMINAR. — For seniors and graduate students. Research in economic theory; problems of labor, commerce, and industry. Library work and reports. If desirable some other economic study may be substituted.
Hours by arrangement. 1 or 2 2-hour conference periods, credit, 1 to 3.
The DEPARTMENT.

Education and Psychology.

Professor WELLES, Professor GLICK, Assistant Professor NEET, Mr. PURVIS, Mr. HEALD,[1] Mr. CARPENTER.

The work in this department may be said to have three major objectives: (1) to be of maximum service to those students who plan to engage in some form of

[1] State Agent for Agricultural Teacher-Training representing the State Department of Education in the administration of vocational education acts.

educational work; (2) to provide training of a cultural nature in education, psychology, and philosophy for the educated layman; (3) to afford intensive training for those who wish to specialize in any of the subject matter fields of the department. Students intending to teach vocational agriculture or related subjects need to consult the head of the department and the State Agent for Agricultural Teacher-training as early as possible to insure a desirable range of preparation.

EDUCATION.

Elective Courses.

65. I. PRINCIPLES AND METHODS OF TEACHING. — For juniors; seniors may elect. The course is offered for those who are expecting to teach. By means of text, case studies, current educational literature, related books and lectures, teaching ideals and procedures are set up. The general plan is one of discussion with numerous short class papers. During the final weeks of the semester attention is given the special methods of teaching certain subjects in secondary schools and outstanding teachers are invited in to present ideas in the teaching of their special subjects.
3 class hours. 12:00-12:50 M. W. F. Credit, 3.
Professor WELLES.

67. I. HISTORY OF EDUCATION. — For juniors; seniors may elect. This course opens a long vista in the development of one very important human endeavor — the passing on to succeeding generations of the accumulated social heritage of the race. The knowledge of this history is assuming greater importance for all teachers in the minds of educational supervisors. The main support is text and supplementary reading with lectures and discussion for clarity and emphasis.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Mr. PURVIS.

72. II. VOCATIONAL EDUCATION IN AGRICULTURE. — For juniors; seniors and graduate students may elect with permission of the head of the department. The course demands certain prerequisites of experience and objective which make permission necessary. It is the first of the series of special courses (72, 78, 82) with a survey of vocational education and an introduction to the teaching of agriculture in secondary schools. Information and observation preparatory to the apprenticeship course. Required of candidates for the agricultural teacher-training certificate.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor WELLES and VOCATIONAL DIVISION of STATE DEPARTMENT OF EDUCATION.

74. II. CLASSROOM MANAGEMENT. — For seniors; juniors may elect. A supplement to the course in Principles and Methods of Teaching with emphasis on those matters that make for conditions in which school work can be done effectively. These of necessity include right ideas about order and discipline, routine organization of group work, adjustments for individual work, arranging and preserving right cooperative alliances outside and inside the schoolroom with supervisors, fellow teachers, pupils and patrons of the school. One section of the time is given definitely to the study of school laws that teachers should know in carrying on this cooperative alliance and is based on actual cases from court records.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Professor WELLES.

76. II. METHODS IN EXTENSION TEACHING. — For seniors; juniors and others qualified may elect. The course deals with various phases of extension work and the methods by which this work is accomplished. The specific lines studied are those of the state director, state leaders, agricultural and home economics specialists, and county agricultural, home demonstration, and 4-H club agents. The different phases of the work will be discussed by members of the extension

[2] A vocational teacher-training certificate will be awarded by the State Division of Vocational Education to those who qualify. (Required courses, 72, 78, 82. Recommended course 65.)

staff who are specialists in their particular lines. The course is valuable to all teachers doing any club work in schools.

2 class hours. 1 2-hour laboratory period by arrangement, credit, 3.

Mr. Carpenter.

78. **I** and **II**. Apprentice Teaching. — For a limited number of qualified candidates in vocational education. A full year in absentia, normally following the junior year in college, teaching agriculture, horticulture, and related subjects. Candidates should have completed the course in Education 72, and in Education 65 if possible, and must apply early to the head of the department. Occasionally open to graduate students.

Maximum credit, 6 semester hours.

Professor Welles and Vocational Division of State Department of Education.

79. **I**. Educational Tests and Measurements. — For seniors, juniors may elect. The course is designed to assist teachers in judging and improving their instruction. The most serviceable tests and scales for measuring school achievement are considered; test construction, administration, scoring and interpretation of results are studied and practiced. The statistical procedures involved in testing techniques are also briefly considered.

3 class hours. 11:00-11:50 M. W. F. Credit, 3.

Mr. Purvis.

80. **I** or **II**. Supervised Teaching and Curriculum Study. — For seniors; juniors may be admitted. Consent of the instructor is required for enrollment in supervised teaching. The course is designed for two types of pupils: for those engaged in supervised teaching and observation, and for those who wish to make a study of the new developments in secondary school curricula. The latter group will have an opportunity in the laboratory period for an intensive study of the curriculum of their special subject. Instead of the regular class periods the teaching group will have a conference hour each week for general discussion of their teaching procedure and problems.

2 class hours. 1 2-hour laboratory period, credit, 3.

Professor Welles and Mr. Purvis.

82. **II**. Technique of Teaching Agriculture. — For seniors and others qualified, by arrangement with the head of the department. By preference this course follows Courses 72 and 78. It covers the material, methods, policies, and special requirements of the state for teaching agriculture and related subjects in vocational schools. Required of candidates for the agricultural teacher-training certificate.

3 class hours. 10:00-10:50 M. W. F. Credit, 3.

Professor Welles and Vocational Division of State Department of Education.

84. **II**. Secondary Education. — For seniors; juniors may elect. The course has two main objectives: (1) To give a perspective of the high school as to its aims, relations, organization, and functions; (2) To present in some detail the agencies and operations that carry these out through the curricula, schedules, and extra-curricular activities. A basic text is used with lectures, supplementary reading and problem assignments.

3 class hours. 9:00-9:50 M. W. F. Credit, 3.

Mr. Purvis.

Psychology.

Required Course.

26. **I** and **II**. General Psychology. — For sophomores. This is an introductory course dealing with the theories and principles of psychology in regard to the understanding and control of human thought, feeling, and action. Practical application of psychological principles are stressed.

3 class hours. Credit, 3.

Professor Glick and Assistant Professor Neet.

51. **I.** Experimental Psychology. — For juniors; seniors may elect. The course is designed to give students an understanding of the typical problems, apparatus, and techniques of research in general experimental and applied psychology. Each student will be allowed to spend a certain amount of time on an independent problem in addition to demonstrations, assigned readings, reports, and experiments.
2 class hours. 11:00-11:50 M. F.; 2 hours by arrangement.
1 2-hour laboratory period, credit, 3.
Assistant Professor Neet.

Prerequisite, Psychology 26.

54. **II.** Educational Psychology. — For juniors, seniors may elect. The course deals with the native equipment of the child, the nature of learning, individual differences, mental testing, transfer of training, etc.
3 class hours. Credit, 3.
Professor Glick and Mr. Purvis.

Prerequisite, Psychology 26.

85. **I.** Abnormal Psychology and Mental Hygiene. — For seniors; juniors may elect. A study of the characteristics, behavior, and treatment of abnormal people. The course is designed to give an intimate appreciation of mental and physical abnormalities as found in the abnormal individual with a view to a better understanding and control of oneself. Special attention will be given to the causes, prevention, diagnosis, and treatment of abnormal conditions. Clinics, reports, and assigned readings.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Assistant Professor Neet.

Prerequisite, Psychology 26.

86. **II.** Industrial Psychology. — For seniors; juniors may elect. A study of the human factor in industry and business. The course aims to give the student an understanding of the psychological principles and practical techniques which are used in the employment of workers, in the solution of other personnel problems, in the treatment of the problems of work, fatigue and motivation, and in the fields of advertising and selling. Assigned readings, field trips, and reports.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Assistant Professor Neet.

Prerequisite, Psychology 26.

89. **I.** Psychology of Guidance. — For seniors, juniors may elect. Guidance is conceived in a broad sense, and such topics as religious and esthetic guidance are considered as well as vocational guidance. Special attention is given to the study of interests, aptitudes, and personality traits, and the psychological devices for measuring and evaluating these are considered and applied. Practice is given in administering and scoring tests, and statistical devices are used to interpret results.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor Glick.

Prerequisite, Psychology 26.

90. **II.** Contemporary Psychologies (1938-39). — For juniors and seniors. A study of the history and present status of the schools of psychology with an evaluation of the various theories and principles of each as they are applied to the fields of psychology and to the many problems of human behavior. The following schools are considered: structuralism, functionalism, Gestalt Psychology, behaviorism, purposivism, psychoanalysis, and topological psychology. Given in alternate years.
2 class hours. 9:00-9:50 Tu. Th. Credit, 2.
Assistant Professor Neet.

Prerequisite, Psychology 26.

92. II. Child and Adolescent Psychology (1937-38). — For juniors and seniors. This course aims to develop an understanding of the mental and physical activities of the child from birth through adolescence. Psychological aspects of the following topics will be considered: original nature, maturation and mental development, emotions, play, social behavior, language, speech defects, learning, problems of adolescence, juvenile delinquency, moral behavior, personality and mental hygiene. Given in alternate years.
3 class hours. 9:00-9:50 Tu. Th. Credit, 3.
Assistant Professor Neet.

Prerequisite, Psychology 26.

95. I. 96. II. Seminar in Psychology. — For seniors; juniors may elect. This course is for students of outstanding ability who have had Psychology 26 and two additional courses in psychology. The student will be allowed to do independent work and study on special problems or in certain fields of psychological interest. Special readings, surveys, reports, experiments and semester papers will be required. By arrangement with the members of the department.
Credit, 1.
Professor Glick and Assistant Professor Neet.

Philosophy.

Elective Courses.

61. I. Fundamentals of Philosophy. — For juniors; seniors may elect. A general approach to the study of philosophy both from the standpoint of method and content. This course attempts to provide a background for the understanding and evaluation of theories of education, religion, ethics, metaphysics, etc.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Professor Glick.

62. II. History of Philosophy (1937-38). — For juniors; seniors may elect. A survey of the development of thought from the early Greeks to the recent past. Emphasis is placed upon the relation of philosophy to life as a whole with emphasis upon ethical, political, religious, educational, and metaphysical problems. Given in alternate years.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor Glick.

64. II. Ethics (1938-39). — For juniors; seniors may elect. A study of the fundamental ethical theories and practices both historical and contemporary. Ethical theories are studied in relation to different types of civilizations and an attempt is made to evaluate the significance of each in our present civilization. Given in alternate years.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor Glick.

History and Sociology.

Professor Mackimmie, Assistant Professor Cutler, Assistant Professor Caldwell, Mr. Williams, Assistant Professor Cary.

The courses in history and sociology are planned with the purpose of giving the student that knowledge and understanding of the important factors and problems in this field of study and life which every active citizen and educated man ought to have. In addition they enable a student to specialize in history and sociology and related science, or in social work.

History.

Required Course.

3. I and II. Modern European History. — For freshmen. A survey of European civilization since 1660.
3 class hours. Credit, 3.
Assistant Professors Caldwell and Cary.

Elective Courses.

25. **I.** American Government. — For sophomores. A study of the historical development, structure, and operation of our government.
3 class hours. Credit, 3.
Assistant Professor Caldwell.

31. **I.** 32. **II.** English History. — For sophomores. Emphasis on economic, social, and cultural influences, as well as on constitutional development. Either semester may be elected independently.
3 class hours. Credit, 3.
Professor Mackimmie and Assistant Professor Caldwell.

52. **II.** Government. — For juniors and seniors. Forms and methods of the governments of Europe; historic types and theories of government; progress and problems of democracy, and new reform movements in organization and administration; new tendencies towards social legislation and extension of governmental control.
3 class hours. Credit, 3.
Professor Mackimmie.

53. **I.** Europe, from 1500 to 1830. — For juniors and seniors. The political and social history of the principal countries of Europe from 1500 to 1830.
3 class hours. 10:00-10:50 Tu. Th., 1:55-2:40 M. Credit, 3.
Professor Mackimmie.

54. **II.** Europe Since 1830. — For juniors and seniors. The rise of nationalism and imperialism; the unification of Italy and of Germany; the Third French Republic; European expansion; the Russo-Japanese War; the World War. While this course is a continuation of Course 53, it is complete in itself and may be elected by those who have had no history training. Its aim is to provide a basis for an understanding of present-day conditions.
3 class hours. 10:00-10:50 Tu. Th., 1:55-2:40 M. Credit, 3.
Professor Mackimmie.

55. **I.** The History of Religions. — For juniors and seniors. Primitive religions, Hinduism, Buddhism, Mohammedanism, and Christianity. Consideration will be given to the application of the material of the course to current religious problems.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Mr. Williams.

56. **II.** The Literature of the Bible. — For juniors and seniors. An introduction to the literature and teachings of the Old and New Testaments.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Mr. Williams.

58. **II.** The Problems of Religion. — For juniors and seniors. The field of this course is that of the philosophy of religion. However, no attempt will be made to cover all the problems of this discipline. Only those problems will be considered which the students electing the course desire to have considered.
2 class hours. Credit, 2.
Mr. Williams.

59. **I.** 60. **II.** History of the United States. — For juniors and seniors. Emphasis on westward expansion, social and economic change as factors influencing political development. Either semester may be elected independently. Not offered 1937-38.
3 class hours. Credit, 3.
Assistant Professor Cary.

61. **I.** Ancient Greek History (1937-38). — For juniors and seniors. Given in alternate years.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor Mackimmie.

63. **I.** Ancient Roman History (1938-39). — For juniors and seniors. Give in alternate years.
3 class hours. 8:00-8:50 M. W. F. Credit,
Professor Mackimmie.

65. **I.** Nineteenth Century England (1937-38). — For juniors and senior Victorian society and ideals; Industrial Revolution and its effects; growth c democracy. Emphasis on social conditions and thought movements. Given i alternate years.
3 class hours. 11:00-11:50 M. W. F. Credit,
Assistant Professor Caldwell.
Prerequisite, History 32 or 54.

67. **I.** Stuart England (1938-39). — For juniors and seniors. The develop ment of limited monarchy is treated, but particular emphasis is placed on socia religious, and intellectual aspects of English life in the period. Wide reading i contemporary sources. Given in alternate years.
3 class hours. 11:00-11:50 M. W. F. Credit,
Assistant Professor Caldwell.
Prerequisite, History 31 or 32.

75. **I.** Medieval Europe. — For seniors only. Europe from the barbarian in vasions to the Renaissance. Social and economic conditions, development o national monarchies, the Church and religion, medieval culture.
3 class hours. 1:00-1:45 M. W. F. Credit, 3
Assistant Professor Cary.

76. **II.** History of the Renaissance. — For seniors only. The later Middl Ages; the Church at the height of power; the rise of nationalities; the Italia towns; the New Learning and its relation to art, science, invention, geographica discoveries; spread and effects of the Renaissance.
3 class hours. 8:00-8:50 M. W. F. Credit, 3
Professor Mackimmie.

82. **II.** Problems in American History. — For seniors only. A course fo those who wish advanced work. Selected problems will be investigated through the study of source material and extensive reading in secondary literature.
3 class hours. Credit, 3.
Assistant Professor Cary.

Sociology.

Elective Courses.

28. **II.** Elements of Sociology. — For sophomores; others admitted by permission of instructor. An outline study of the social order, and of the individual considered as a member of his various groups.
3 class hours. Sect. I, 9:00-9:50 M. W. F.; Sect. II, 1:55-2:40 M. W. F. Credit, 3.
Assistant Professor Cutler.

51. **I.** 52. **II.** Systematic Sociology. — For juniors; seniors may elect. A study and classification of the uniformities observable in human social behavior, with practical application of the findings; phases of social theory are defined. These courses are sequential, but may be elected independently.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Assistant Professor Cutler.

53. **I.** An Introductory Study of Culture and Anthropology. — For juniors; seniors may elect. A non-technical sociological study of man in the prehistoric periods.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Assistant Professor Cutler.

54. **II.** Civilization. — For seniors; juniors may elect. A sociological study of man in the successive historical periods; influential factors in American life are analyzed.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Assistant Professor Cutler.

75. **I.** Problems of Social Reform. — For seniors; juniors may elect. A study of abuses affecting the home, recreation, race, business, industry, farming, family welfare, public health, government, international relations, mental disease, and crime; the charitable and correctional institutions of Massachusetts as agencies of reform receive special attention; social case work is explained.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Assistant Professor Cutler.

77. **I.** Sociological Research and Field Work. — For seniors; juniors may elect. A study of the methods of research employed by sociologists and of the logical and mathematical analysis to which the latter subject their findings; students, under direction of the instructor, analyze and organize such sociological knowledge as they acquire through their own social service experience, and include all in a comprehensive report; projects must be approved in advance by the instructor.
Hours by arrangement. 6 laboratory hours, credit, 3.
Assistant Professor Cutler.
Prerequisite, Sociology 28, or the consent of the instructor.

79. **I.** 80. **II.** Seminar. — Enrolment is open to graduate students, and seniors specializing in social science who are qualified. These courses are sequential but may be elected independently.
2 class hours. Hours by arrangement. Credit, 2.
Assistant Professor Cutler.

84. **II.** Conservation of the Family. — For seniors. A study of some of the modern problems in family life; ways in which an individual and society can help to conserve the family; some hindrances to normal family life. This course aims to develop an intelligent social consciousness and a sense of individual responsibility in family relationships.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Skinner.

Recreational Planning.

62. **II.** 63. **I.** Public Relations in Recreational Planning. — A year course beginning in the second semester of junior year and continuing through the first semester of senior year. Designed for students specializing in Recreational Planning; others may elect only by special arrangement with the adviser in Recreational Planning. A course in public contacts designed to bring to the attention of the student those persons and agencies with which contact should be made if one is to succeed in recreational work. Surveys, appraisals, co-ordination, national and regional organizations, community recreation councils, training institutes, community planning and personnel problems are some of the factors to be considered. Projects for investigation will be assigned to each student.
2 class hours. Credit, 2.
Dr. Vinal.

Languages and Literature.

Professor Rand, Professor Julian, Professor Prince, Associate Professor Goding, Associate Professor Fraker, Assistant Professor Goldberg, Assistant Professor Troy, Mr. Ellert, Dr. Helming, Mr. Stratton, Mr. Lyle, Miss Horrigan, Mr. Dow, Miss Brouillet.

The courses in English are intended to enable students to express themselves effectively and to appreciate the ideals of English-speaking people throughout their history; those in French, Spanish, and German to give a practical knowledge of these languages for the purpose of wider reading and research, leading to a better understanding of the art and the science and the peoples concerned; those

in music, to furnish in a non-technical way, a background of the history of music and its interpretation.

English.

Required Courses.

1. I. 2. II. English Composition. — For freshmen. Intended to teach straight thinking, sound structure, clear and correct expression. Lectures, recitations, theme writing, and conferences.
3 class hours. Credit, 3.
Professors Prince and Rand, Assistant Professors Goldberg and Troy, Dr. Helming, Miss Horrigan.

25. I. 26. II. A Survey of English Literature. — For sophomores. A general reading course with lectures, from the beginning of English literature to the end of the Nineteenth Century.
2 class hours. 8:00-8:50 Tu. Th. Credit, 2.
Professor Prince.

29. I. 30. II. Public Speaking. — For sophomores. The purpose of the course is to teach, by means of practice in the composition, memorization and delivery of short speeches, an effective, confident, and clearly enunciated presentation.
1 class hour. Credit, 1.
Mr. Dow, Dr. Helming, Mr. Lyle, Miss Horrigan.

Elective Courses.

50. II. Chaucer (1937-38). — For juniors and seniors. Reading of the principal works of Chaucer; a study of Chaucer's development as a creative artist; an attempt to appreciate his humanism. Given in alternate years.
3 class hours. 12:00-12:50 M. W. F. Credit, 3.
Professor Prince.

52. II. The Renaissance in England. — For juniors and seniors. A study of various aspects of the Renaissance as revealed in such writers as Spenser, Bacon, Sir Thomas Browne, Burton, and Hobbes. Special emphasis is given to Spenser's *Faerie Queene.*
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Assistant Professor Troy.

54. II. The Renaissance in England (1938-39). — For juniors and seniors. A study of the chief non-dramatic poets from Sidney and the "Metaphysicals", chiefly Donne, through Milton. Given in alternate years.
3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3
Assistant Professor Goldberg.

55. I. Shakespeare. — For juniors and seniors. This course is based upon the reading of about thirty of Shakespeare's plays, and attempts both to indicate the evolution of the dramatist and to emphasize the various phases of his art.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Professor Rand.

57. I. Elizabethan Dramatists. — For juniors and seniors. A study of Elizabethan drama, exclusive of Shakespeare, with special consideration of the plays of such men as Lyly, Peele, Greene, Kyd, Marlowe, Jonson, Beaumont, Fletcher, Webster, Massinger.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor Prince.

59. I. English Prose of the Eighteenth Century (1937-38). — For juniors and seniors. A brief exposition of the thinking of the period, in philosophy, government, and criticism is followed by a study of essayists and letter writers from Defoe to Godwin. Given in alternate years.
3 class hours. 12:00-12:50 M. W. F. Credit, 3.
Professor Prince.

60. **II.** American Literature (1938-39). — For juniors and seniors. A course in the chief American writers, among those studied being Irving, Cooper, Melville, Hawthorne, Emerson, Freneau, Bryant, Poe, Longfellow, and Whitman. Given in alternate years.
3 class hours. 12:00-12:50 M. W. F. Credit, 3.
Professor Prince.

61. **I.** Romantic Poetry (1938-39). — For juniors and seniors. A study chiefly in the beginning of Romanticism in English poetry as found in the work of Collins, Gray, Burns, and Blake, with considerable attention to the culmination of Romanticism in the poetry of Shelley and Keats. Given in alternate years.
3 class hours. 12:00-12:50 M. W. F. Credit, 3.
Professor Prince.

62. **II.** Romantic Poetry (1938-39). — For juniors and seniors. A contrasting study of Byron and the Lake Poets, and in some ways a continuation of Course 61. Given in alternate years.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Rand.

64. **II.** Victorian Poetry (1937-38). — For juniors and seniors. A study of the Pre-Raphaelites, Tennyson, and Browning. Given in alternate years.
3 class hours. Credit, 3.
Professor Rand.

65. **I.** English Prose Writers of the Nineteenth Century. — For juniors and seniors. A study of the chief Romantic and Victorian prose writers, especially Coleridge, Hazlitt, Carlyle, Newman, Ruskin, and Arnold.
3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3.
Assistant Professor Goldberg.

66. **II.** Modern Poetry (1937-38). — For juniors and seniors. This course attempts to trace the spirit of twentieth century poetry from such authors as Hardy, Whitman, and Emily Dickinson to those of the present day. Given in alternate years.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Professor Rand.

68. **II.** Modern Drama (1938-39). — For juniors and seniors. This course traces the development of English drama from the time of Ibsen to the present day. Its purpose is to impart an intelligent and sympathetic interest in the theatre of the twentieth century. Given in alternate years.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3
Professor Rand.

70. **II.** English Prose Fiction. — For juniors and seniors. A course of lectures and reading designed to illustrate the development of English prose fiction, with emphasis upon the great novels of the eighteenth and nineteenth centuries.
3 class hours. Credit, 3.
Dr. Helming.

71. **I.** Biography (1938-39). — For juniors and seniors. Lectures on the history of biography as a literary type; reading and discussion of leading biographers from Boswell to Maurois, with special emphasis upon the development of modern biographical method. Given in alternate years.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Dr. Helming.

72. **II.** An Introduction to Literary Criticism (1937-38). — For juniors and seniors. A study of major critical attitudes and principles, in relationship to philosophic background and immediate application. Designed for students concentrating in languages and literature. Given in alternate years.
3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3.
Assistant Professor Goldberg.

81. **I.** Creative Writing. — For juniors and seniors. Advanced work in writing based upon specimens by authors of established reputation and upon the personal experience of the student.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Rand (1938-39), Dr. Helming (1937-38), Assistant Professor Troy (yearly).

83. **I.** Library Research (1937-38). — For juniors and seniors. Each student makes a considerable investigation of a subject of his own selection. An orderly accumulation of material is followed by a formal interpretation of its significance. Given in alternate years.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor Rand.

90. **I** and **II.** Extempore Speech. — For juniors and seniors. This course is intended to give the student practice in speaking from memorized outlines and impromptu, and also in the presentation of readings before an audience. Registration limited to twelve.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Mr. Dow.

92. **II.** Argumentation and Oratory. — For juniors and seniors. It presents the fundamental principles of argumentation with the principles and the practice of formal oratory, prescribing the preparation and delivery of one original oration, and reading in oratory. It is recommended for those who desire to enter the intercollegiate debates or the Flint Contest.
3 class hours. 10:00-10:50 M. W. F. Credit, 3.
Professor Prince.

Recreational Planning.

89. **I** and **II.** Dramatic Production. — A seminar course, open only to students specializing in Recreational Leadership who have been recommended by their special adviser and who are also taking English 90, 57 or 55, and 68.
Hours by arrangement. Credit, 3.
Professor Rand.

French.

Elective Courses.

1. **I.** 2. **II.** Elementary French. — For freshmen; sophomores, juniors, and seniors may elect. The essentials of grammar are rapidly taught and will be accompanied by as much reading as possible.
3 class hours. Credit, 3.
Associate Professors Fraker and Goding.

5. **I.** 6. **II.** Intermediate French. — For freshmen and sophomores; juniors and seniors may elect. Grammar review and composition. Training for rapid reading. The reading of short stories, novels, and plays, selected readings from periodicals and scientific texts in the library.
3 class hours. Credit, 3.
Associate Professors Fraker and Goding.
Prerequisites, French 1 and 2 or their equivalent.

7. **I.** 8. **II.** French Survey. — For freshmen and sophomores; juniors and seniors may elect. A general survey of the history of French literature and the development of French culture, with representative works of the important periods.
3 class hours. Credit, 3.
Associate Professors Fraker and Goding.
Prerequisites, French 5 and 6 or their equivalent.

29. I. 30. II. French Classicism (1937-38). Alternate with Courses 31. I and 32. II. — For sophomores; juniors and seniors may elect. A survey of the Classical period, with readings from representative works.
3 class hours. 1:55-2:40 M. W. F. Credit, 3.
Associate Professor Fraker.
Prerequisites, French 7 and 8 or their equivalent.

31. I. French Romanticism (1938-39). Alternates with Course 29. — For sophomores; juniors and seniors may elect. A detailed study of the Romantic period. Readings from Hugo, de Vigny, Lamartine, de Musset, and others. The influence of English, German, and Italian literature is stressed.
3 class hours. 1:55-2:40 M. W. F. Credit, 3.
Associate Professor Goding.
Prerequisites, French 7 and 8 or their equivalent.

32. II. French Realism (1938-39). Alternates with Course 30. — For sophomores; juniors and seniors may elect. A detailed study of the Realistic period and the modern writers. Readings from Balzac, Flaubert, Stendahl, Loti, Daudet, Anatole France, and others.
3 class hours. 1:55-2:40 M. W. F. Credit, 3.
Associate Professor Goding.
Prerequisite, French 31.

71. I. Voltaire (1938-39). Alternates with Course 79. — For juniors and seniors. A study of the eighteenth century through the life and works of Voltaire.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Associate Professor Fraker.
Prerequisites, French 7 and 8 or their equivalent.

72. II. French Lyricism (1938-39). Alternates with Course 80. — For juniors and seniors. A study of the French lyric poets, including excerpts in modern translation from the Middle Ages and from the various modern movements through the nineteenth century. Collateral readings and reports.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Associate Professor Fraker.
Prerequisites, French 7 and 8 or their equivalent.

79. I. Balzac (1937-38). Alternates with Course 71. — For juniors and seniors. A study of the life, works, and ideas of Balzac based upon a careful reading of about fifteen of his most important novels.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Associate Professor Goding.
Prerequisites, French 7 and 8 or their equivalent.

80. II. Advanced Grammar and Composition (1937-38). Alternates with Course 72. — For seniors; juniors may elect with the consent of the instructor. A thorough review of grammar, pronunciation, and the phonetic method. The course also includes practice teaching and outside reading on methods of teaching French.
3 class hours. 8:00-8:50 Tu. Th. S. Credit, 3.
Associate Professor Goding.

Spanish.

Elective Courses.

51. I. 52. II. Elementary Spanish. — For juniors and seniors; open to other students upon arrangement. Grammar, exercises in composition and conversation, reading of selected short stories.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Associate Professor Fraker.

75. I. 76. II. Modern Spanish Authors. — For seniors. Reading from modern Spanish novel and drama; composition; outside reading.
3 class hours. 9:00-9:50 Tu. Th. S. Credit, 3.
Associate Professor Fraker.

Prerequisite, Spanish 52.

German.

Elective Courses.

1. I. 2. II. Elementary German. — For freshmen; sophomores, juniors, and seniors may elect. Grammar, reading, and prose composition. Special emphasis is placed on the acquirement of a fundamental stem vocabulary and the ability to understand simple German paragraphs in German.
3 class hours. Credit, 3.
Professor Julian, Mr. Ellert, and Mr. Lyle.

5. I. 6. II. The Classical Period. — For freshmen; sophomores, juniors and seniors may elect. Reading and study of some important literary productions of the classical period; spoken German; passages of prose and poetry to commit to memory.
3 class hours. Credit, 3.
Mr. Ellert.

Prerequisite, German 25 and 26, or Entrance German.

25. I. 26. II. The Short Story. — For sophomores; juniors and seniors may elect. The German short story; the simpler German drama; grammar review and advanced prose composition. Simple passages of prose and poetry to commit to memory.
3 class hours. Credit, 3.
Mr. Ellert and Mr. Lyle.

Prerequisites, German 1 and 2.

27. I. 28. II. Early German Literature and History. — For sophomores; juniors and seniors may elect. The *Niebelungenlied* and *Parzival* in modern German versions.
3 class hours. 11:00-11:50 M. W. F. Credit, 3.
Professor Julian.

Prerequisites, German 5 and 6, or 25 and 26.

55. I. 56. II. Advanced German. — For juniors and seniors. Before enrolling in this course, students should consult the instructor in charge of the course. The "Storm and Stress" period of German literature, with study of the early plays of Goethe and Schiller. The Romantic period from Novalis to Heine, with study of poets, dramatists, critics, and philosophers.
3 class hours. 10:00-10:50 Tu. Th. S. Credit, 3.
Mr. Ellert.

Prerequisites, German 5 and 6, or 25 and 26.

81. I. 82. II. Scientific German. — For seniors. Intensive and specialized reading of literature in standard German scientific journals and reference books.
3 class hours. 9:00-9:50 M. W. F. Credit, 3.
Professor Julian.

Prerequisites, German 5 and 6, or 25 and 26.

75. I. 76. II. Goethe's Faust. — For juniors and seniors.
3 class hours. 8:00-8:50 M. W. F. Credit, 3.
Professor Julian.

Prerequisites, German 5 and 6, or 27 and 28.

79. I. 80. II. Conversational German. — Open to advanced students in German, by permission of the instructor in charge. Practice in the oral use of German, based on reading material prepared in advance, and dealing with present-day Germany.
2 class hours. Hours by arrangement. Credit, 3.
Professor Julian and ———.

MUSIC.

Elective Courses.

1. I. 2. II. CHORAL SINGING. — For freshmen, sophomores, juniors, and seniors. This course is designed to acquaint the student, through study and performance, with examples of the best choral music of all periods. Admission is by approval of the instructor. This course is recommended for those who desire to prepare themselves for participation in choral services.
2 scheduled hours. Credit, 1.
Mr. STRATTON.

51. I. HISTORY AND APPRECIATION OF MUSIC. — For juniors and seniors. The Classical School. Works of Bach, Handel, Haydn, and Mozart are performed and studied. Lectures, musical illustrations, and outside readings.
3 scheduled hours. 11:00-11:50 M. W. F. Credit, 2.
Associate Professor GODING.

52. II. HISTORY AND APPRECIATION OF MUSIC. — For juniors and seniors. A continuation of Course 51. The Romantic School: Beethoven, Schubert, Weber, Mendelssohn, Schumann, Chopin, Berlioz, Liszt. The Italian, French, and German schools of opera; modern and contemporary composers.
3 scheduled hours. 11:00-11:50 M. W. F. Credit, 2.
Associate Professor GODING.
Prerequisite, Music 51.

61. I. 62. II. EVOLUTION OF MODERN MUSIC. — For juniors and seniors. A thorough survey is made of the most important trends and personalities of music, from the earliest times to the present. It is designed to acquaint the student with the background for the understanding of contemporary music, which is treated in detail. Lectures, illustrations, and outside readings.
3 scheduled hours. 9:00-9:50 M. W. F. Credit, 2.
Mr. STRATTON.

75. I. 76. II. HARMONY. — For juniors and seniors. A study of the development of harmonic principles up to the present time. Part-writing for four voices, and harmonic analysis. Emphasis is placed upon ear-training to promote the student's aural imagination and recognition of all material studied. Previous musical experience is desirable, but not required. Course 75 is prerequisite to Course 76.
3 scheduled hours. 11:00-11:50 Tu., 1:00-1:45 Th., 1 hour by arrangement. Credit, 2.
Mr. STRATTON.

DIVISION OF PHYSICAL EDUCATION.

Professor HICKS.

Student Health.

Professor RADCLIFFE, Assistant Professor THOROMAN, Dr. RAKIETEN.

Required Course.

1. I. HYGIENE. — For freshmen. Given in separate sections for men and women. Lectures on personal hygiene, including the physiological basis for sound health habits.
2 class hours for one-half semester. Credit, 1.
Dr. RAKIETEN and Dr. THOROMAN.

Physical Education for Men.

Professor GORE, Professor RADCLIFFE, Professor CARAWAY, Assistant Professor DERBY, Assistant Professor BRIGGS, Mr. BALL, Mr. ROGERS, Mr. KAUFFMAN.

The work of Physical Education for Men covers the required work in Physical Education the first year; elective work in Team Game Participation the second year, and the opportunity to specialize the last two years either in Physical Education and Teacher Coaching or in the field of Recreation.

Required Courses.

3. **I.** PHYSICAL EDUCATION. — For freshmen. One hour a week of exposu to carry-over value and life-time sport instruction. The development of recre tional aptitudes is stressed. Team Game participation is required. Men will ele two seasonal athletic activities per semester or their equivalent. Special work required for those freshmen whose physical examinations show that postur corrective work is indicated.
1 class hour. Credit, 1
The DEPARTMENT.

4. **II.** PHYSICAL EDUCATION. — For freshmen. The one hour a week requir ment of carry-over value and life-time sport instruction and the Team Gam participation requirement of two seasonal athletic activities per semester or thei equivalent is continued.
1 class hour. Credit, 1
The DEPARTMENT.

Elective Courses.

23. **I.** PHYSICAL EDUCATION. — For sophomores. Team Game participation men may elect two seasonal athletic activities per semester or their equivalent.
Hours by arrangement. Credit, 1
The DEPARTMENT.

24. **II.** PHYSICAL EDUCATION. — For sophomores. Team Game participation men may elect two seasonal athletic activities per semester or their equivalent.
Hours by arrangement. Credit, 1
The DEPARTMENT.

Admission by permission only.

51. **I.** INTRODUCTORY COURSE FOR TEACHER-COACHES. — For juniors an seniors. This course outlines the coaching of football, soccer, and basketball.
2 class hours. 11:00-11:50 M. F.; 1:00-2:40 W.
1 2-hour laboratory period, credit, 3
Professors CARAWAY and BRIGGS.

52. **II.** INTRODUCTORY COURSE FOR TEACHER-COACHES. — For juniors an seniors. Continuation of Course 51. This course outlines the coaching of base ball, track and field athletics, and hockey and winter sports, also athletic pedagogy.
3 class hours. 11:00-11:50 M. W. F. Credit, 3
Professor CARAWAY, Assistant Professor DERBY, Mr. BALL.

53. **I.** PHYSICAL EDUCATION THEORY AND PRACTICE. — For juniors and seniors. This course includes the objectives, organization, significance, and con tent of physical education in the grade schools. The course is correlated with the requirements of the State Department of Education.
2 class hours. 10:00-10:50 Tu. Th.; 1:00-2:40 M.
1 2-hour laboratory period, credit, 3.
Assistant Professor DERBY.

54. **II.** PHYSICAL EDUCATION THEORY AND PRACTICE. — For juniors and sen iors. This course includes the objectives, significance, organization and content of physical education in junior and senior high school. The course is correlated with the requirements of the State Department of Education.
2 class hours. 10:00-10:50 Tu. Th.; 1:00-2:40 M.
1 2-hour laboratory period, credit, 3.
Assistant Professor DERBY.

55. **I.** HISTORY AND PURPOSES OF PHYSICAL EDUCATION. — For juniors and seniors. A brief study of the history of the development of the various systems of physical education and a study of the aims and ideals of present-day physical education. Lectures, textbooks, reports on assigned readings, and a final outline.
2 class hours. 11:00-11:50 M. W. Credit, 2.
Professor GORE.

56. **II.** Organization and Administration of Physical Education. — For seniors. Considers the organization and administration of a department of physical education.
2 class hours. Credit, 2.
Professor Hicks.

57. **I.** Camping Technique. — For juniors and seniors. This course covers the details of camping technique, including the special skills of camping in the open.
2 class hours. 9:00-9:50 M. W.
1 2-hour laboratory period, by arrangement, credit, 3.
Professor Gore co-operating with the Department of Forestry and other Departments.

58. **II.** Camping Leadership, Administration and Maintenance. — For juniors and seniors. The development of the camping idea. Organized camps as a part of education, camp standards and practices, camp program building. The qualifications necessary for camp counselors and camp administrators.
2 class hours. 9:00-9:50 M. W.
1 2-hour laboratory period, by arrangement, credit, 3.
Professor Gore.

59. **I.** Scouting Elements and Principles. — For juniors and seniors. A course in the elements and principles of Scoutmastership.
1 class hour. 9:00-9:50 Tu.; 2 hours by arrangement.
1 2-hour laboratory period, credit, 2.
Professor Gore co-operating with Local Scout Executives.

71. **I.** 72. **II.** Special Problems Course in Physical Education. — For seniors specializing in physical education. Presentation and discussion of research work in physical education, health education or athletics. Each student will make a special study of some phase of physical education.
3 class hours. Hours by arrangement. Credit, 3.
The Department.

73. **I.** Recreation Activities and Skills. — For seniors; juniors may elect. A study of recreation technique and skills and methods of recreation leadership.
2 class hours. 10:00-10:50 M. W.
1 2-hour laboratory period, by arrangement, credit, 3.
Professor Gore co-operating with the Extension Service and other Departments.

74. **II.** Recreation Organization and Administration. — For seniors; juniors may elect. Administrative problems of community recreation programs, leisure surveys, supervision of recreational areas, park recreation, program making, and the lay-out and equipment of play facilities.
2 class hours. 10:00-10:50 M. W.
1 2-hour laboratory period, by arrangement, credit, 3.
Professor Gore co-operating with the Extension Service and other Departments.

75. **I.** Health Education Theory and Practice. — For seniors. This course gives the teaching supervision, and administration of school health programs. It also gives first aid as applied in the home, on the street, and on the athletic field. Men who complete this course satisfactorily will receive American Red Cross First Aid Certificates.
1 class hour. 9:00-9:50 F. 1 2-hour laboratory period, by arrangement, credit, 2.
Professors Radcliffe and Briggs.

77. **I.** Anatomy General. — For juniors. A course in structural human anatomy.
2 class hours. 9:00-9:50 M. F.; 1:00-2:40 W.
1 2-hour laboratory period, credit, 3.
Dr. Radcliffe.

78. II. Anatomy Applied. — For juniors. A course aimed to give the anatomical application basal to a thorough understanding of the mechanical problems in apparatus, athletic and corrective exercises.
2 class hours. 9:00-9:50 M. F.; 1:00-2:40 W.
1 2-hour laboratory period, credit, 3
Dr. Radcliffe.

Physical Education for Women.

Miss Blatchford, Miss Callahan.

Physical education is a very important part of each woman's education. It is the aim of the department to develop skills and appreciations which help to complete and enrich the life of the student. The organic power and neuromuscular skills, the emotional release and control gained by physical education provides the individual woman with ways of meeting life's situations.

Required Courses.

7. I. Recreation. — For freshmen. Outdoor season: archery, games, soccer, field hockey, special gymnastics; indoor season: badminton, basketball, clog, folk, and tap dancing (rhythmic dances), special gymnastics, swimming, volley ball, games.
2 2-hour laboratory periods, credit, 2.
The Department.

8. II. Recreation. — For freshmen. Indoor season: badminton, basket-ball, clog, folk, and tap dancing, special gymnastics, indoor baseball, swimming, volley ball, games; outdoor season: archery, baseball, special gymnastics.
2 2-hour laboratory periods, credit, 2.
The Department.

27. I. Recreation. — For sophomores. Outdoor season: archery, soccer, field hockey, special gymnastics; indoor season: badminton, basketball, dancing, special gymnastics, swimming.
2 2-hour laboratory periods, credit, 2.
The Department.

28. II. Recreation. — For sophomores. Indoor season: badminton, basketball, dancing, special gymnastics, indoor baseball, swimming; outdoor season: archery, baseball, special gymnastics.
2 2-hour laboratory periods, credit, 2.
The Department.

Elective Courses.

61. I. 62. II. Recreation. — For juniors. Outdoor season: sports and games depending upon the physical condition and needs of the students; indoor season: creative dancing.
11:00-11:50 Tu., 1:00-1:45 Th. 2 1-hour laboratory periods, credit, 1.
The Department.

81. I. 82. II. Recreation. — For seniors. Outdoor season: sports and games for physical benefits and further development of skill and for social contacts; indoor season: creative dancing.
11:00-11:50 Tu., 1:00-1:45 Th. 2 1-hour laboratory periods, credit, 1.
The Department.

Department of Military Science and Tactics.

Lieutenant Colonel Horace T. Aplington, Cav. (D. O. L.), U.S.A.; Major Leo B. Conner, Cav. (D. O. L.), U.S.A.; Major Harold P. Stewart, Cav. (D. O. L.), U.S.A.; Technical Sergeant Jonathan Madden, U.S.A., Retired; Technical Sergeant James A. Warren, Cav. (D. E. M. L.), U.S.A.; Sergeant Frank Cronk, Cav. (D. E. M. L.), U.S.A.; Staff Sergeant Roy Tanner, Cav. (D. E. M. L.), U.S.A., and a detachment of enlisted men of the United States Army.

Under act of Congress, July 2, 1862, the College was required to provide a two-year course in military instruction under a regular army officer. All able-bodied four-year male students are required to take this course. Under act of Congress, June 3, 1916, as amended by act of Congress, September 8, 1916, there

was established at this college in April, 1917, an infantry unit of the Reserve Officers' Training Corps. Following the World War and an act of Congress, July 19, 1918, the Reserve Officers' Training Corps has been in operation under the regulation of the War Department, administered by the president of the college and the professor of military science and tactics. Beginning with the fall term, 1920-21, the infantry unit of the Reserve Officers' Training Corps was converted into a cavalry unit.

The primary object of the Reserve Officers' Training Corps is to provide systematic military training at civil educational institutions, for the ultimate purpose of qualifying selected students of such institutions as reserve officers in the military forces of the United States. It is intended to attain this object during the time the students are pursuing their general or professional studies, with the least practicable interference with their civil careers, by employing methods designed to fit men physically, mentally, and morally for pursuits of peace as well as war.

The course for cavalry units of the Reserve Officers' Training Corps includes theoretical and practical instruction in all phases of cavalry work, so distributed over the four-year college course as to qualify students at the end of the freshman year as privates of cavalry, at the end of the sophomore year as non-commissioned officers of cavalry, and upon graduation as reserve officers. The instruction in this department covers cavalry drill, cavalry weapons—rifle, pistol, machine rifle, and machine gun — map reading, minor tactics, equitation, etc. The course in equitation includes cross-country riding and jumping. Forty per cent of the course is classroom work. All practical instruction is out of doors.

All male candidates for a degree in the four-year course must take at least three hours a week of military training for two years. Students who are approved by the president and the professor of military science and tactics may take the advanced course in their junior and senior years if they so elect. The advanced course consists of at least five hours per week and a summer camp of about six weeks during the summer vacation between the junior and senior years. Students taking this course are paid by the Federal Government at a rate to be fixed by the Secretary of War, not to exceed the value of the army ration. The rate now is twenty-five cents per diem amounting for the two years to $148.25 to which should be added pay at camp of $29.40 making a cash value of $177.65. Students are required to equip themselves with riding boots but remainder of uniform is furnished by the college and becomes the property of the student upon graduation. Students graduating in the advanced course are eligible for commissions in the Officers' Reserve Corps, but are not required to accept such commissions if offered.

Uniforms for freshmen and sophomores are supplied by the college without cost except for boots. A deposit of $20 is required to insure return of uniform articles. In addition, the student is required to purchase one pair of boots through the Military Department at a cost of about $4.00. The uniforms for the juniors and seniors (advanced course) are similar to U. S. army officers' uniforms tailor-made for the individual student. A deposit of thirty dollars for this uniform is required at the beginning of the junior year.

Required Courses.

1. **I.** 2. **II.** For freshmen. Theoretical and practical instruction in courtesy and discipline, rifle marksmanship, hygiene and first aid, dismounted drill, and musketry.

3 scheduled hours, credit, 2.
ARMY INSTRUCTORS.

25. **I.** 26. **II.** For sophomores. Theoretical and practical instruction in leadership, riding, drill, saber, machine rifle and pistol, and employment of cavalry.

3 scheduled hours, credit, 2.
ARMY INSTRUCTORS.

Elective Couses.

51. **I.** 52. **II.** For juniors. Cavalry drill and riding, selection and care o horses, pistol marksmanship, machine guns, map reading, map making, jumping and employment of cavalry.
8:00-8:50 M. W. F., 11:00-11:50 Tu., 1:00-1:45 Th. 5 scheduled hours, credit, 2.
ARMY INSTRUCTORS.

75. **I.** 76. **II.** For seniors. Military law, history, correspondence and rec ords, engineering (bridges and explosives), cavalry drill, leadership and com mand, riding, mounted sports, competitions, horse-show preparation and manage ment, cross-country riding, and employment of cavalry.
8:00-8:50 M. W. F., 11:00-11:50 Tu., 1:00-1:45 Th. 5 scheduled hours, credit, 3
ARMY INSTRUCTORS.

The Graduate School

F. J. Sievers, *Director.*

Graduate courses leading to advanced degrees have been available at the College practically since its establishment. At the beginning these courses leading to the degrees of master of science and doctor of philosophy were confined almost entirely to the offerings in the field of science. Since then the work has expanded until now a major toward either degree may be selected in any of the following subjects:

Agricultural Economics and Farm Management
Agronomy
Bacteriology
Botany
Chemistry
Economics
Entomology
Food Technology
Pomology
Poultry Science
Sociology

The following departments offer major work toward a master of science degree only:

Animal Husbandry
Dairy Industry
Education
Floriculture
Home Economics
Horticultural Manufactures
Psychology

The degree of master of landscape architecture is granted to students completing the two years' graduate work offered by the department of landscape architecture; while students taking the equivalent of one year's graduate work in that major may be granted the degree of bachelor of landscape architecture.

Several other departments in the institution, while not regularly organized for major work in the Graduate School, do, nevertheless, offer courses which may be selected for minor credit. These are:

English
French
Forestry
Geology
German
History
Mathematics
Philosophy
Physical Education
Physics
Physiology
Veterinary Science
Zoölogy

The general requirements of the Graduate School regarding entrance, residence, credits, tuition, fees, etc., together with specific information concerning details of interest to prospective students are set down in a separate bulletin which may be obtained upon request to the Director's Office.

The Summer School

For thirty years the College has conducted a summer session, starting at first with a four-weeks' program consisting largely of teacher training and adult courses in nature study, vegetable gardening, fruit growing, poultry raising, and ornamental gardening, all organized without reference to credits or degree. Gradually the emphasis on such work changed and the need for more professional courses of college grade has resulted since 1924 in a six-weeks' session offering a well-balanced program of credit courses. These are arranged to assist (1) superintendents, principals, and teachers, connected with high or elementary schools who desire advanced instruction either with or without relation to academic credits; (2) classroom teachers who seek to prepare themselves more effectively in their special studies; (3) college undergraduates who wish to satisfy deficiencies or secure courses not otherwise available; and (4) any adult person who finds courses of special interest and aid for leisure or livelihood.

Fees and living expenses are very moderate so that many people arrange their vacation periods to include the summer session. A carefully planned program of entertainment including instruction in such sports as tennis, badminton, and archery, with hiking and picnics, swimming and golf, provides recreation for all.

Admission.

There are no formal examinations for admission to the Summer School. Undergraduate students are admitted to such courses as their preparation justifies. Admission to the Graduate School will be granted to graduates of Massachusetts State College and to graduates of other institutions having substantially equivalent requirements for the bachelor's degree.

The following courses were offered in the 1937 session and illustrate the type of program at present available.

*History of Education
*The Improvement of Instruction
*The Scientific Study of Educational Problems
*Principles of Educational Administration
*Problems in Vocational Teaching
*Principles of Vocational Education
*Applied Psychology
*Educational Psychology
*Fundamentals of Nutrition
*Genetics and Eugenics
General Chemistry I.
General Chemistry II.
*Central Banking
*Corporation Finance
Elementary Economics
*Labor Problems
*Creative Writing
*Current Tendencies in American Literature
*Shakespeare
*The English Renaissance
*Government of the United States
History of England in Modern Times
*History of the U. S. 1865-1937
*International Relations Since the World War
*Food Preservation
*Mathematics of Finance
Practical Computation
*Recreation Activities

For further information, write or apply to Roland H. Verbeck, Director of Short Courses, Massachusetts State College, Amherst, Mass.

For information concerning graduate work in the summer school, write or apply to Fred J. Sievers, Director of the Graduate School, Massachusetts State College, Amherst, Mass.

*Indicates courses carrying graduate credit.

Non-Degree Courses of Instruction

THE STOCKBRIDGE SCHOOL OF AGRICULTURE.

General Information.

The Stockbridge School of Agriculture was organized in 1918, under the name of "The Two-Year Course in Practical Agriculture," for the purpose of meeting the demand for a short course in agriculture which might be taken by students who could not satisfy college entrance requirements or who, for one reason or another, were unable to take the college course. In 1928 the School was given its present name in honor of Levi Stockbridge, first professor of agriculture in the College and its fifth president.

This course trains men and women for the practice of farming or associated agricultural industries. Graduation from it does not fulfill the requirements for entrance into the degree course nor are credits earned during the course transferable regularly toward credit for a degree.

As the course is now organized, students may specialize in any one of nine vocations: animal husbandry, dairy manufactures, floriculture, horticulture, fruit growing, poultry husbandry, vegetable gardening, wildlife management, or foods and food processing for hotel and restaurant training. Specialization in a vocation does not prevent students from securing a general working knowledge of other subjects. The Stockbridge School will appeal not only to young men and women, but also to men and women of mature years and practical experience who wish to know more about the business of farming or associated industries. The School is not intended for students enrolled in a high school; such students should complete their high school course before seeking admission.

Entrance Requirements.

Applicants for admission must be at least seventeen years old and must have completed at least an elementary school course or its equivalent. Before being enrolled for the work of the second year, students must have completed six-months' practical experience approved by the supervisor of placement training.

Students who are already enrolled in high schools and who wish to enter this School before the completion of the high school course should bring a statement, either from the principal of the high school or from the parent or guardian, requesting enrollment.

Instruction.

The instruction is given by the regular faculty by means of classroom teaching, laboratory exercises, and practical work. The work of the classroom is supplemented by demonstration work in the laboratory, dairy room, greenhouse, and stables, and by a six months' period of placement training during the spring and summer following the second semester (eight weeks only) of resident instruction. The course is designed to offer plain, practical, direct information, and to establish the underlying reasons for, as well as methods employed in, the various operations.

Credit and Diploma.

In order to obtain a diploma, the student must complete satisfactorily all the work required in the vocational course which he has selected. This course consists of six months of class and laboratory work from October to April supplemented by six months of practical experience gained between the first and second years of resident instruction and subject to the approval of the supervisor of placement training.

No student failing to meet the requirements of his six month's summer training can be enrolled for the second year, since the placement training is an absolutely necessary prerequisite.

Graduates of county schools of agriculture or of agricultural departments of high schools may complete the course for a diploma in one year if they are recom-

mended by the director of the county school or by the instructor in charge of the department of agriculture in the high school.

Special Catalog.

For a complete catalogue of the Stockbridge School of Agriculture, containing an application blank, write or apply to Director Roland H. Verbeck, Massachusetts State College, Amherst, Mass.

THE WINTER SCHOOL.

Short Courses are based on the idea that the motive which inspires study is the most significant factor in study itself, and that this motive rises when the student himself realizes he faces a problem that calls for a solution. Therefore, there is no age limit. Enrolled in short courses are found the young and the old, the experienced and the inexperienced, the theoretical and the practical. In this grouping there is a value, since students learn from each other as well as from the instructors. Practically all Short Course students intend to make a direct application of the knowledge gained. Hence the aim of Short Course work is to offer the largest amount of information and training in agricultural and horticultural lines in the shortest possible time. During the past thirty years Short Courses have served hundreds of students in this Commonwealth, and the demand for these courses in recent years has steadily continued.

The Winter School has been established for a number of years at the College, and has proved to be very popular.

Instruction in the following courses will be offered this year:

(1) Nine Weeks' Course in Poultry Raising. November 15 to January 28.
(2) Ten Week's Course for Greenkeepers. January 3 to March 14.
(3) Ten Weeks' Advanced Course for Greenkeepers. January 3 to March 14.
(4) Ten Weeks' Practical and Scientific Course for Florists. January 3 to March 12. Next offered in 1940.
(5) Two Weeks' Course in Dairy Bacteriology. January 3 to January 15.
(6) One Week Course in Milk and Cream Testing; Analyzing and Inspecting Milk Products. January 17 to January 22.
(7) One Week Course in Milk Plant Operation and Manufacture of Surplus Milk Products. January 24 to January 29.
(8) One Week Course in Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes, and Freezing. January 31 to February 5.
(9) One Week Course in Ice Cream Making for Experienced Men. February 7 to February 12.
(10) Five-day Course for Tree Wardens and Town Foresters. March 21 to March 26.

During the one week the student devotes all of his time to the work of the special course in which he has enrolled. The instruction lasts throughout the day from 8 to 5. These courses meet a very definite need in the State for those who wish instruction, but who cannot attend for a longer period of time, and who do not wish to take other subjects.

Tuition and Fees.

	Tuition	*Registration*	*Health*
Greenkeepers' Course	$10.00	$5.00	$1.50
Advanced Greenkeepers' Course	10.00	5.00	1.50
Practical and Scientific Course for Florists	10.00	5.00	1.50
Poultry Course	9.00	5.00	1.50
Dairy Bacteriology Course	2.00	2.00	None
Dairy Courses, each	2.00	2.00	None
Tree Wardens' and Town Foresters' Course	2.00	2.00	None

The Faculty of the College

HUGH P. BAKER, D.Oec., LL.D., . . . South College—President's House
President.

The Resident Teaching Staff.

PROFESSORS EMERITI.

WILLIAM P. BROOKS, Ph.D., D.Agr., ... 6 Farview Way
Professor of Agriculture, Emeritus.

HENRY T. FERNALD, Ph.D., . . . 707 East Concord Ave., Orlando, Florida
Professor of Entomology, Emeritus.

JOSEPH B. LINDSEY, Ph.D., Sc.D., ... 47 Lincoln Ave.
Professor of Chemistry, Emeritus.

FRED W. MORSE, M.S., ... 40 Pleasant St.
Research Professor of Chemistry, Emeritus.

JOHN E. OSTRANDER, A.M., C.E., ... 33 North Prospect St.
Professor of Mathematics, Emeritus.

FRED C. SEARS, Sc.D., ... Mount Pleasant
Professor of Pomology, Emeritus.

GEORGE W. ALDERMAN, B.A., . . . Physics Laboratory—East Pleasant St.
Assistant Professor of Physics.

CHARLES P. ALEXANDER, Ph.D., ... Fernald Hall—Old Town Road
Professor of Entomology and Acting Head of Department.

ALLEN E. ANDERSEN, Ph.D., . . . Mathematics Building—Harkness Road
Assistant Professor of Agricultural Engineering.

HORACE T. APLINGTON, A.B., ... Drill Hall—55 Lincoln Ave.
Lieutenant-Colonel, Cavalry, U.S.A., Professor of Military Science and Tactics and Head of Department.

LORIN E. BALL, B.S., ... Physical Education Building—3 Allen St.
Instructor in Physical Education.

LUTHER BANTA, B.S., ... Stockbridge Hall—7 Allen St.
Assistant Professor of Poultry Husbandry.

ROLLIN H. BARRETT, M.S., . . . Stockbridge Hall—45 East Pleasant St.
Professor of Farm Management.

ETHEL W. BLATCHFORD, B.S., ... Drill Hall—27 East Pleasant St.
Physical Director for Women.

LYLE L. BLUNDELL, B.S., ... Wilder Hall—5 Northampton Road
Professor of Horticulture.

HAROLD D BOUTELLE, B.S., . . . Mathematics Building—21 Fearing St.
Assistant Professor of Mathematics.

LEON A. BRADLEY, Ph.D., ... Marshall Laboratory—7 Cosby Ave.
Professor of Bacteriology.

LAWRENCE E. BRIGGS, B.S., . . . Physical Education Building—3 Allen St.
Assistant Professor of Physical Education.

MILDRED BRIGGS, M.S., ... Stockbridge Hall—46 Sunset Ave.
Assistant Professor of Home Economics

THEODORE C. CALDWELL, Ph.D., ... The Chapel—Shays St.
Assistant Professor of History and Sociology.

KATHLEEN CALLAHAN, A.B., ... Drill Hall—East Pleasant St.
Instructor in Physical Education.

ALEXANDER E. CANCE, Ph.D., ... South College—9 Fearing St.
Professor of Economics and Head of Department.

ELBERT F. CARAWAY, B.S.A., . . . Physical Education Building—North Amherst
Professor of Physical Education.

HAROLD W. CARY, A.M., ... The Chapel—North Amherst
Assistant Professor of History.

JOSEPH S. CHAMBERLAIN, Ph.D., . . Goessmann Laboratory—Mount Pleasant
Goessmann Professor of Chemistry.

WALTER W. CHENOWETH, M.S., Horticultural Manufactures Lab.—North Amherst
Professor of Horticultural Manufactures and Head of Department.

JOHN A. CLAGUE, Ph.D., . . Horticultural Manufactures Lab.—15 Gray St.
Assistant Professor of Horticultural Manufactures.

ORTON L. CLARK, B.S., ... Clark Hall—12 College St.
Associate Professor of Botany.

LEO B. CONNER . . . . . Drill Hall—13 Taylor St.
Major, Cavalry, U.S.A., Assistant Professor of Military Science and Tactics.

Mrs. GLADYS M. COOK, M.S., . . . Nutrition Laboratory—30 Lincoln Ave.
Instructor in Home Economics.

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[1] Ranks as Professor.
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Peckham, Robert Bishop	Medford
Perriello, Robert Charles	Dorchester
Peterson, David Allen	Methuen
Pickering, James Aaron	Boston
Planting, Alfred Herbert	Amherst
Pratt, Roger Kingman, Jr.	Brockton
Priest, Edith Evelyn	Maynard
Provost, Rita Agnes	North Agawam
Raynes, William Augustus, Jr.	Hyde Park
Rice, Lee Wilson, Jr.	Wilbraham
Richards, Prescott Langdon	Florence
Richason, George Robert, Jr.	Turners Falls
Riggs, Maida Leonard	Grafton
Roberts, Louis Everett	Lexington
Rogers, Caroline Rita	Medway
Rosberry, Paul Hubbard	Erving
Ross, Kenwood	Springfield
Rossiter, David Patrick, Jr.	Malden
Ruffley, John, Jr.	New Bedford
Ryan, James Marcus	Needham Heights
Ryer, Robert, III	South Hadley
SanClemente, Charles Leonard	Milford
Sawinski, Gladys Caroline	Taunton
Seperski, Stanley Francis	East Pepperell
Sheffield, Norman Louis	Enfield
Shiff, Philip Burrill	Duxbury
Silverman, Milton	Malden
Simonsen, Walter	Everett
Sleeper, Harold Anthony	South Groveland
Small, Saul	Springfield
Smith, Esther Elizabeth	Easthampton
Spear, Philip James	Charlemont
Spiller, Robert LeRoy, Jr.	Beverly
Stepath, Francis Elizabeth	Springfield
Stone, Elinor Leola	Orange
Swan, Edward Parsons, Jr.	Amherst

Swanson, Carl Pontius	Rockport
Symancyk, Clifford Ernest	Westfield
Talinski, John Joseph	Roxbury
Thacker, Edward Jesse	Winthrop
Thomas, Albert Stetson	Brattleboro, Vt.
Thomas, Francis Joseph	Turners Falls
Thorndike, Robert William	Lawrence
Thurlow, Donald Frederick	Greenfield
Todt, Ruth Elizabeth	West Springfield
Trombly, Everett Lowe	Indian Orchard
Tubiash, Haskell Solomon	Dorchester
Tucker, Donald Kent	Foxboro
Turner, Harvey Gay, Jr.	Andover
Tuttle, John Albert	Torrington, Conn.
Waldman, James Saul	Springfield
Warner, Helen May	Sunderland
Warner, Louise Isabel	Sunderland
Watts, Harold Irving	Amherst
Waxler, Beatrice Rivoli	Holyoke
Weaver, Donald Edward	Springfield
West, Eleanor Alice	Sheffield
Whitmore, Edith Lillian	Forestdale
Whitney, Ira Bertram	West Springfield
Whittemore, Frederick Winsor, Jr.	Canton
Widland, Myron Albert	Springfield
Wilcox, Sarah Clark	Hudson
Williams, Sidney	Peabody
Wingate, Marian Kay	Fairhaven
Wishart, Frederick Joseph, Jr.	Turners Falls
Wisnieski, Karol Stanely	South Deerfield
Wood, Judith Gail	Weymouth Heights
Wood, Ruth Elizabeth	Holyoke
Wyman, Raymond	Westfield
Zuckerman, Arthur Jacob	Pittsfield
Zukel, John William	Northampton

Bachelor of Vocational Agriculture (B.V.A.)

Lewis, Walter Fredric	Andover
Sampson, Henry James	North Westport

Superior figures indicate:
[1] Enrolled during academic year 1936-37.
[2] Enrolled in Summer School 1937.
[3] Enrolled during first semester 1937-38.

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Rooney, Grattan.[1] Education B.A., St. Anslem's College	Palmer
Rosnick, Hyman.[3] Education B.S., East Stroudsberg Teachers College	Springfield
Ruffley, John, Jr.[3] Horticultural Manufactures B.S., Massachusetts State College	New Bedford
Russell, George E.[3] Education B.A., American International College	Ludlow
Sartwell, Robert T.[2] Education B.S., University of North Carolina	Northampton
Saulnier, Florence.[1 3] Education B.S., Massachusetts State College	Worcester
Savaria, Thomas J.[1] Dairy Industry B.S., M.S., Massachusetts State College	Ware
Savoie, Alphonse[3] Dairy Industry B.S., University of Montreal	Quebec, Canada
Scanlon, James G.[3] A.B., College of the Holy Cross	Leominster
Scrivnor, Glen F.[3] Education B.P.E., Purdue University	Michigan City, Indiana

Scott, Ruth E.[1] Psychology . . . . . North Hadley
B.S., Massachusetts State College
Seager, Beatrice F.[2] . . . . . Boston
B.S.E., Boston University
Seass, Stewart.[1 3] . . . . . North Amherst
B.A., Williams College
M.A., Amherst College
Shaw, Miriam.[1 3] Entomology . . . . . Amherst
B.S., St. Lawrence University
M.S., Massachusetts State College
Shea, Kevin G.[1] Horticultural Manufactures . . . . . Chicopee Falls
B.A., Ottawa University
M.S., Massachusetts State College
Shiff, Philip B.[3] Agricultural Economics . . . . . South Duxbury
B.S., Massachusetts State College
Simon, Philip N.[3] Horticultural Manufactures . . . . . Brookline
B.S., Colby College
Smith, Chester W.[1] Agricultural Economics . . . . . Fairfield, Maine
B.S., University of Maine
M.S., Massachusetts State College
Smith, Olive.[1 2] Education . . . . . Springfield
B.S.E., Bridgewater State Teachers College
Southwick, Lawrence.[1 3] Pomology . . . . . Leicester
B.S., Massachusetts State College
Spruijt, Frederik J.[1 3] Entomology . . . . . Deerfield
Agricultural College of Amsterdam
M.S., University of California
Stacy, Jessie E.[3] . . . . . Jamaica Plain
B.S., Boston University
M.A., New Hampshire University
Staszko, Peter G.[2] Education . . . . . Feeding Hills
A.B., Boston College
St. Clair, Lillian E.[1] Education . . . . . Palmer
B.S.E., Westfield State Teachers College
Stearns, Calton M.[1] Education . . . . . Hathorne
B.S., M.S., Massachusetts State College
Stelle, R. Moore.[1] Education . . . . . Northampton
A.B., Illinois University
M.S., Massachusetts State College
Stevens, Robert F.[1 3] Floriculture . . . . . Medfield
B.S., Massachusetts State College
Stevens, Nelson P.[1] Chemistry . . . . . Haverhill
B.S., M.S., Massachusetts State College
Stiles, Stuart P.[1 3] Chemistry . . . . . Amherst
B.A., Wesleyan University
Stone, Philip C.[1] Entomology . . . . . Athol
B.S., M.S., Massachusetts State College
Story, Enoch F.[3] Chemistry . . . . . East Providence, R. I.
B.S., M.S., Rhode Island State College
Sullivan, John B.[3] Education . . . . . Springfield
A.B., Notre Dame University
Sweinberger, Tabea C.[2] . . . . . Holyoke
B.A., Mt. Holyoke College
Sydla, Stanley A.[2] Education . . . . . Ware
B.A., Providence College
Tatoian, Harry E.[1] Education . . . . . Thompsonville, Conn.
B.A., Colgate University
Tetreault, Vernon A.[1] Education . . . . . Springfield
A.B., University of Notre Dame
Tetro, Robert C.[1] Agricultural Economics . . . . . Williamsburg
B.S., M.S., Massachusetts State College
Thayer, Carroll E.[1] Education . . . . . Williamsburg
B.S., Massachusetts State College
Thomas, Howard.[1] Education . . . . . Suffield, Conn.
B.S., M.S., Massachusetts State College
Thorndike, Robert W.[3] Landscape Architecture . . . . Lawrence
B.S., Massachusetts State College
Tomlinson, William E., Jr.[3] Entomology . . . . . West Newton
B.S., Tufts College
Torno, William H.[1 3] Psychology . . . . . Holyoke
B.S.E., Fitchburg State Teachers College
Tramposch, Emil J.[3] Landscape Architecture . . . . Amherst
B.S., Massachusetts State College
Trout, Eleanor.[1 3] . . . . . Amherst
B.S., Simmons College
Tufts, Mrs. William H.[1] Education . . . . . Segreganset
B.S., Michigan State College
Tufts, William H.[1] Education . . . . . Segreganset
B.S., Michigan State College
Turner, Max E.[1 2 3] Pomology . . . . . Augusta, Maine
B.S., University of Maine
Utley, Walter S.[3] Education . . . . . Chesterfield
B.S., Massachusetts State College
Vaughn, Donald M.[1 3] Education . . . . . Springfield
B.P.E., Springfield College
Vendt, Eric C.[2] Education . . . . . Worcester
B.S., Connecticut State College

Vitagliano, Guy R.[1 3] Bacteriology . . . . . Concord, N. H.
B.S., University of New Hampshire
Warner, Joseph, Jr.[1 2] . . . . . Amherst
A.B., Amherst College
Warner, Roger.[1] Education . . . . . Williamsburg
B.S., Massachusetts State College
West, Eleanor A.[3] . . . . . Sheffield
B.S., Massachusetts State College
Whalen, Edward J.[3] Education . . . . . Springfield
B.S.E., Fitchburg State Teachers College
Whittemore, Frederick W.[3] Entomology . . . . . Canton
B.S., Massachusetts State College
Widland, Myron A.[3] Dairy Industry . . . . . Springfield
B.S., Massachusetts State College
Wilkinson, Richard A.[2] Education . . . . . Fitchburg
B.S.E., Fitchburg State Teachers College
Williams, Sidney.[3] Chemistry . . . . . Peabody
B.S., Massachusetts State College
Wishart, Frederick J.[3] Bacteriology . . . . . Turners Falls
B.S., Massachusetts State College
Wood, John R.[3] Botany . . . . . North Easton
A.B., Dartmouth College
Worthington, James M.[1] . . . . . Amherst
B.A., Williams College
M.A., Columbia University
Yeaw, Frank W.[1] Education . . . . . Greenfield
B.M., New England Conservatory of Music
B.A., Amherst College
Yonika, Thaddeus M.[3] Dairy Industry . . . . . Brighton
B.S., Massachusetts College of Pharmacy
Zak, John M.[1 3] Agronomy . . . . . Sunderland
B.S., Massachusetts State College

Summary Graduate Students

	Men	Women	Total
Enrolled during academic year 1936-37	141	37	178
Enrolled in Summer School 1937	24	23	47
Enrolled during first semester 1937-38	117	20	137
Total excluding duplications	232	66	298

Undergraduate Students

Class of 1938

Adams, Crawford William	Springfield	66 Lincoln Avenue
Alcorn, Robert Edward	West Springfield	Alpha Gammo Rho
Allaire, Royal Phillip	Northampton	26 Dickinson Street, Northampton
Allen, Marshall Bigelow	North Grafton	Theta Chi
Anderson, Philip Brigham	Framingham	Alpha Sigma Phi
Avery, Rexford Hanson	Shrewsbury	Theta Chi
Avery, William Blodgett	Shelburne Falls	Sigma Phi Epsilon
Baker, Warren Sears, Jr.	Hanson	Q. T. V.
Ball, Elinor Prescott	Roxbury	Adams House
Bargfrede, John Frederick	Pearl River, N. Y.	Sigma Phi Epsilon
Barton, Elizabeth Sherwood	South Amherst	25 Spring Street
Barton, Richard Wallace	Amherst	51 Amity Street
Beaumont, Davis Wortham	Amherst	101 Pleasant Street
Beaumont, Edgar Sidney	Amherst	Theta Chi
Becher, Marion Rose	Longmeadow	Lambda Delta Mu
Belgrade, Harry Louis	Northampton	10 Wilson Avenue, Northampton
Beloin, Mederic Howard	Holyoke	Q. T. V.
Benson, Kenneth Ellis	Winchester	Alpha Gamma Rho
Bergman, William Erving	Shelburne Falls	Phi Lambda Tau
Bianco, Joseph Raymond	North Adams	83 Pleasant Street
Bieniek, Edwin Alexander	Holyoke	North College
Binder, Irving	Roxbury	Phi Lambda Tau
Bixby, Ruth Lydia	Sunderland	Sunderland
Blaisdell, Harry Linwood	Greenfield	Phi Sigma Kappa
Blake, Norman Perkins	Malden	Lambda Chi Alpha
Blomberg, Earl Alfred	Leominster	Stockbridge Hall
Bloom, Esther Lillian	Springfield	Adams House
Bode, Fred William	Lawrence	35 Lincoln Avenue
Bokina, Carl John	Hatfield	Alpha Sigma Phi
Bozek, Stanley Milton	Easthampton	19 Franklin Street, Easthampton
Bray, Richard Irving	Gloucester	6 North Hadley Road
Bray, Warren Clarence	Granby	6 North Hadley Road
Bristol, Gilbert Dearborn	East Longmeadow	Alpha Gammo Rho

Brown, Elinor	Leicester	2 Sunset Court
Brown, Herbert Earl	Ashland	Lambda Chi Alpha
Brox, Frank Arthur	Dracut	East Experiment Station
Bullock, William Augustine	Arlington	North College
Bush, John George	Turners Falls	Stockbridge Hall
Buzzee, Robert Daniel	Easthampton	Kappa Sigma
Carpenter, Cynthia Ellen	Sterling Junction	Care of R. D. Hawley, Mt. Pleasant
Carr, Frank Fairfield	West Medford	Theta Chi
Caruso, Edward Francis	Springfield	20 Pleasant Street
Casazza, John Bernard	Merrimac	15 Phillips Street
Casey, Arthur Daniel	Franklin	North College
Cederberg, Florence Mildred	Jamaica Plain	Adams House
Chase, Jessie Josephine	West Springfield	Alpha Lambda Mu
Chase, Philip Batcheller	Springfield	President's House
Clapp, Edward Theodore	Florence	20 Pine Street, Florence
Clark, Norman	Sharon	West Experiment Station
Collins, Charles Wilson	Medford	83 Pleasant Street
Collins, William James	Salem	Q. T. V.
Cone, Leon Winston	North Brookfield	Alpha Gamma Rho
Corkum, Gladys Martha	Methuen	22 Fearing Street
Couper, Henry Vincent	Littleton	Apiary
Coutu, Vernon Francis	Erving	Signa Alpha Epsilon
Crowell, Stella Ida	Greenfield	Sigma Beta Chi
Curtin, Kathleen Teresa	Tyringham	Care of E. F. Gaskill, North Pleasant Street
Curtis, Clifford Alvin	Hopkinton	Lambda Chi Alpha
Cushman, Frank Melvin	Malden	9 Fearing Street
Czelusniak, Edward William	Easthampton	83 Pleasant Street
Davidson, Albert Alan	Springfield	5 McClellan Street
Dewey, Robert Clifford	Gardner	Care of L. C. Allen, Farview Way
Dickens, Frederick Leland	Ashland	Poultry Plant
Dolliver, Marguerite Elizabeth	Belmont	Care of E. F. Gaskill, North Pleasant Street
Dunlop, John Thistle	Chicopee	Lambda Chi Alpha
Dunn, Joseph Francis	Brighton	35 Lincoln Avenue
Eaton, William	Waltham	Lambda Chi Alpha
Edson, Charles Grant	Springfield	26 Fearing Street
Edson, Theodora Elizabeth	East Braintree	22 Fearing Street
Eliopaulos, Nicholas Daniel	Haverhill	Q. T. V.
Elkind, Henry Byron, Jr.	North Scituate	Alpha Epsilon Pi
Ellegaard, Lloyd Howard	Holyoke	17 Washington Avenue, Holyoke
Elliott, Charles Edward	Beverly	Apiary
Epstein, Walter Nathan	Dorchester	Mt. Pleasant Inn
Evans, Robert Earle	Northampton	21 Summer Street, Northampton
Fagan, Virginia Mary	Holyoke	Sigma Beta Chi
Fahey, Eleanor Dorney	Winthrop	Phi Zeta
Farnsworth, Albert Humphries	Worcester	Phi Sigma Kappa
Farrell, Kenneth Thomas	Brookline	Alpha Gamma Rho
Feinburg, Robert Sidney	Brighton	Alpha Epsilon Pi
Ferguson, William Bragdon	Ludlow	Theta Chi
Filipkowski, Frances Pola	Whately	East Whately
Finkel, Jacob	Springfield	86 Pleasant Street
Fitzpatrick, Richard James	Rochdale	Farmhouse
Fleming, James Appenzellar	Holyoke	Lambda Chi Alpha
Flower, Stanley Allen	Southbridge	Alpha Gamma Rho
Forbush, Alfred	Longmeadow	6 Nutting Avenue
French, Cyrus Edwin	West Roxbury	Theta Chi
Gage, Robert Wilcox	Needham	Thatcher Hall
Gaskell, Betty Frances	South Deerfield	Sigma Beta Chi
Gibbs, Berthier Lyman	Saugus	Amherst Tea Room
Giddings, Lane	Great Barrington	83 Pleasant Street
Gilbert, Ann	Belmont	Phi Zeta
Gill, Joseph Stanley	Bondsville	11 Spring Street, Bondsville
Glass, Edward Hadley	Lexington	Sigma Alpha Epsilon
Gleason, Robert Patrick	Northampton	82 Massasoit Street, Northampton
Goldberg, Shirley Bliss	Amherst	24 Dana Street
Goldman, Abraham Bernard	Dorchester	56 Pleasant Street
Golub, Samuel Joseph	Springfield	Phi Lambda Tau
Graham, William Butterworth	North Andover	Q. T. V.
Graves, Julia Tice	Sunderland	Sunderland
Green, Walter Albert	Lynn	Theta Chi
Gruner, Saul George	Pittsfield	56 Pleasant Street
Guenard, George Henry	Dracut	6 North Hadley Road
Hadro, Gertrude Josephine	Easthampton	Care of R. D. Hawley, Mt. Pleasant
Halpern, Herbert Milton	Holyoke	Phi Lambda Tau
Handverger, Edward	West Medway	Phi Lambda Tau
Harrison, William Hughes, Jr.	Lawrence	Phi Sigma Kappa
Haskins, Philip Hanley	Williamstown	Theta Chi
Hauck, Russell John	Norwood	Kappa Sigma
Heller, Saul	Roxbury	North College
Hemond, Conrad Joseph, Jr.	Holyoke	43 Pearl Street, Holyoke
Hemond, Harold Cream	Holyoke	43 Pearl Street, Holyoke

Hennessy, Thomas	Newton Highlands	Phi Sigma Kappa
Higgins, Edward William	Arlington	Phi Sigma Kappa
Hill, Kathryn	Springfield	Adams House
Hoar, John Sherman	Amherst	50 Main Street
Houghton, Leroy Kingsbury, Jr.	West Roxbury	84 Pleasant Street
Howard, Almeda Barr	Elizabeth, N. J.	75 West Street, Northampto
Hurwitch, Benjamin Gordon	Dorchester	56 Pleasant Street
Ingram, Ralph	Falmouth	Apiary
Irving, Richard Randlett	Methuen	Kappa Sigma
Jackson, Mitchell Irving	Fairhaven	North College
Jacobson, Seymour Theodore	Springfield	86 Pleasant Street
Jefferson, Ruth Reta	West Springfield	Mt. Pleasant
Jenkins, Doris Wynne	Shrewsbury	Phi Zeta
Johnson, Herbert Harry	Roslindale	Theta Chi
Judd, Kirtley Leverett	Springfield	6 Nutting Avenue
Julian, Carol	Amherst	4 Farview Way
Julian, Eleanor Burton	Amherst	4 Farview Way
Kaplinsky, Martha Dorothy	Holyoke	Adams House
Katzeff, Julian Herman	Brookline	North College
Kelley, Thomas Francis	Waltham	Old Town Road
Kenyon, Marieta Gibson	East Douglas	22 Fearing Street
King, Richard Coleman	Newtonville	Theta Chi
Kingsbury, Helen	Sterling	Care of R. D. Hawley, Mt Pleasant
Kinsman, Jessie	Roxbury	Sigma Beta Chi
Klaucke, Rowland	Worcester	Alpha Gamma Rho
Klayman, Maxwell Irving	Roxbury	97 Pleasant Street
Kodis, Ruth Elinor	Leicester	Draper Hall
Kohn, Bernard Lester	Roxbury	Alpha Epsilon Pi
Kuklewicz, Frank Peter	Turners Falls	179 Avenue A, Turners Falls
Lamb, David Allison	South Hadley Center	5 Burnett Avenue, South Hadley Center
Lavrakas, John	Watertown	North College
Lee, James Donovan	Chester	Alpha Gamma Rho
Levinson, Lawrence	Arlington	Care of Wentworth, East Pleasant Street
Liljegren, Solveig Utne	Wollaston	Draper Hall
Linden, Norman Elliott	Everett	Theta Chi
Little, Melvin, Theodore	East Weymouth	North College
Lombard, Elmer Ralph	Pittsfield	Alpha Gamma Rho
Lonergan, William Francis, Jr.	Springfield	Sigma Phi Epsilon
Lyons, Robert Stephen	Springfield	Lambda Chi Alpha
Mabie, Richard Lockwood	Sharon	66 Lincoln Avenue
MacCurdy, Robert Douglas	Watertown	84 Pleasant Street
Macomber, Lois Rogers	Fairhaven	Sigma Beta Chi
Mann, Lillian Russell	Westfield	The Homestead
Mayko, Walter Charles	Holyoke	163 Walnut Street, Holyoke
McGowan, Donald Sanford	Holyoke	Kappa Sigma
Mildram, David Elliot	Greenwood	Phi Sigma Kappa
Milkey, Elaine Helen	Montague City	Sigma Beta Chi
Millard, Carol Frances	Segreganset	The Homestead
Miller, Barbara Mitchell	Springfield	Adams House
Mitchell, Walter Kimball, Jr.	Newton Highlands	Theta Chi
Moore, Edwin Lewis	Amherst	R. F. D.
Morley, Frances Lillian	Amherst	Phi Zeta
Morris, Helen Carew	Monson	27 South Pleasant Street
Morrison, Robert Karl	Pittsfield	North College
Moult, Roy Hapworth	Lynn	10 McClellan Street
NeJame, Mitchell Francis	North Adams	50 Pleasant Street
Nelson, Phyllis Louise	Arlington	Phi Zeta
Newman, Edward George	North Brookfield	Kappa Sigma
Niden, George	Newton Centre	Kappa Sigma
Nolan, Kenneth Gordon	Danvers	French Hall
Noonan, William George	Haverhill	83 Pleasant Street
O'Connell, Mary Patricia	Wakefield	Phi Zeta
O'Donnell, William Gregory	Milford	67 Lincoln Avenue
Olivier, James Barnes	Holyoke	54 Lincoln Avenue
Osley, Donald	Hatfield	Alpha Sigma Phi
Page, Alfred Sylvester	South Amherst	Kappa Sigma
Parker, Evelyn Maude	Orange	44 Triangle Street
Perkins, Robert Cowan	Worcester	Phi Sigma Kappa
Phillips, Barbara Sanborn	Greenfield	25 Chattuck Street, Greenfield
Pollard, Albert William	Northampton	103 Massasoit Street, Northampton
Pond, Virginia Mabel	Greenfield	12 Miles Street, Greenfield
Potter, Wendell Judson	Melrose	Phi Sigma Kappa
Putnam, Paul Sears	Greenfield	Theta Chi
Pyenson, Maxwell	Otis	Alpha Epsilon Pi
Quast, Wentworth	Natick	Phi Sigma Kappa
Randall, Sylvia Arline	Granby	22 Fearing Street
Randlett, Horace Hillman	North Wilbraham	Springfield Road, Palmer
Rice, Theodore Albert	Wellesley	Phi Sigma Kappa
Riel, Frederick Charles	Turners Falls	East Experiment Station
Riley, William Charles	Holyoke	Sigma Alpha Epsilon
Roberge, William Edward	Westfield	Sigma Phi Epsilon
Rosenbloom, Charles	Holyoke	19 Pleasant Street
Rounds, Dean Leonard	Reading	4 Sunset Court
Rozwenc, George Stephen	Northampton	5 Franklin Court, Northampton

Rustigian, Robert	Medford	Stockbridge Hall
Rutter, Louise Baldwin	Waltham	2 Sunset Court
Scace, Elizabeth Terry	Pittsfield	Care of W. S. Mueller, East Pleasant Street
Schopfer, Jane Elizabeth	Worcester	Lambda Delta Mu
Seal, Ethel Frances	Worcester	The Homestead
Shaw, Marion	Belchertown	Adams House
Sherman, Chester	Amherst	29 North Prospect Street
Sievers, Frederick John	Amherst	35 Fearing Street
Silverman, Donald Lawrence	Roxbury	Alpha Epsilon Pi
Silverman, Stephen Israel	Milton	Alpha Epsilon Pi
Slesinski, Frank Alphonse	Northampton	Box 27, North Amherst
Slocomb, Jack Tibbets	Brockton	44 Triangle Street
Smardon, Philip	Portland, Maine	Kappa Sigma
Smith, Rodger Chapman	Amherst	West Street
Smith, Russell Eaton	Lawrence	Alpha Sigma Phi
Snow, Phyllis Maude	Brockton	The Homestead
Spaight, Kathryne Ida	Springfield	The Homestead
Sprague, Edna Angie	Hamilton	Alpha Lambda Mu
Stewart, Christine Alan	Boylston	The Homestead
Streeter, Mary Elizabeth	Holyoke	Phi Zeta
Strode, Barbara Jeanette	Marblehead	Phi Zeta
Swiren, Alfred Milton	Springfield	Care of Wentworth, East Pleasant Street
Taylor, Winnifred Hope	Pittsfield	Lambda Delta Mu
Tetreault, Herbert Arthur	Northampton	Sigma Alpha Epsilon
Thayer, Edith Gwendolyn	West Bridgewater	Phi Zeta
Theriault, Frederic Russell	East Weymouth	47 Amity Street
Thompson, Elthea	Norwood	Phi Zeta
Tindale, John William	Brockton	67 Lincoln Avenue
Tonkin, Maurice	Fitchburg	21 Paige Street
Towle, Richard Washburn	Cohasset	Lambda Chi Alpha
Towne, Louisa Elsie	Norfolk	Phi Zeta
Townsley, Floyd Wayne	Ashfield	Lambda Chi Alpha
Vaill, Phila Kellogg	Monson	Phi Zeta
Valvanis, Nicholas John	Haverhill	9 Hitchcock Road
Walkey, Delia Roberta	South Hanson	93 Northampton Road
Welcker, William Fuller	Holyoke	95 Lincoln Street, Holyoke
Wheeler, James Francis	Natick	Alpha Gamma Rho
White, Howard Eric	North Amherst	North Amherst
Whitney, Walter Augustus	Ashfield	Ashfield
Wildner, Carl Richard	Amherst	Belchertown Road
Willard, DeVoe Holmes	Baltimore, Md.	Mt. Pleasant Inn
Wilson, Margaret Dorothy	Holyoke	69 Sycamore Street, Holyoke
Wood, Douglas James	Florence	97 Chestnut Street, Florence
Wood, Lois Virginia	West Upton	19 Phillips Street
Wood, Ruth Elizabeth	Springfield	Lambda Delta Mu
Woodin, Marjorie Helena	Millers Falls	Draper Hall
Youngren, Clare Pauline	Orange	Draper Hall

Class of 1939

Allen, Robert Searle	Westfield	Phi Sigma Kappa
Andersen, Henry Gardner	Newton Centre	North College
Anderson, Rita	Easthampton	61 Northampton Street, Easthampton
Auerbach, Milton Edward	Springfield	North College
Balcom, John Murray	Quincy	Care of Dr. Lindsey, Mt. Pleasant
Barké, Harvey Ellis	Plymouth	Durfee Range
Barrett, William Francis	Adams	3 Nutting Avenue
Bartlett, Lawrence Matthews	Medford	17 Phillips Street
Beck, Sidney Harold	Malden	Alpha Epsilon Pi
Beckman, Wallace George	Springfield	101 Pleasant Street
Belgrade, Max	Northampton	10 Wilson Avenue, Northampton
Bemben, John	Hadley	Box 419, Hadley
Benjamin, George Cobb	Lee	Phi Sigma Kappa
Bennas, James George	Amherst	4 Dickinson Street
Bettoney, Stanley	Stoughton	Q. T. V.
Bischoff, George Herman	Holyoke	North College
Bixby, Lawrence Hubbard	Sunderland	Sunderland
Blassberg, Irving	Turners Falls	Phi Lambda Tau
Booth, Mabelle	Foxboro	6 McClure Street
Boron, Bertha Barbara	South Deerfield	14 Thayer Street, South Deerfield
Bradley, Geraldine Irene	Amherst	48 Pleasant Street
Branch, Charles Leland	Amherst	38 Dana Street
Brann, James Lewis, Jr.	Westwood	15 Phillips Street
Brett, Pauline Jean	Duxbury	8 East Pleasant Street
Briggs, Beryl Frances	Ashburnham	Lambda Delta Mu
Brisset, Pauline Amelia	Holyoke	895 Hampshire Street, Holyoke
Broadfoot, Arthur David	Amherst	130 Pleasant Street
Brody, George	Roxbury	Poultry Plant
Brown, Donald Emerson	Beverly	Sigma Alpha Epsilon
Buckley, Rita Marie	Beverly	Sigma Beta Chi
Burgun, Philip Eugene	Canton	Sigma Phi Epsilon

Burke, Rosamond Margot	Beverly	Care of E. F. Gaskill, Nor Pleasant Street
Cadigan, Donald Winslow	Greenfield	North College
Cain, Robert Emery	Conway	Kappa Sigma
Calo, Donald	Flushing, N. Y.	Phi Sigma Kappa
Carp, Abraham	Boston	Alpha Epsilon Pi
Cassidy, Wellington Elmer	North Andover	42 McClellan Street
Chapin, Ronald Hale	Greenfield	North College
Christie, Charles Frederic	North Amherst	North Pleasant Street
Ciereszko, Leon Stanley	Holyoke	North College
Clapp, Elizabeth May	Springfield	Sigma Beta Chi
Cole, Robert Salisbury	Westfield	Care of Dr. Alexander, O Town Road
Cole, Roger Martin	Marblehead	Phi Sigma Kappa
Colgate, Doris	Billerica	Adams House
Cooper, Grace Battell	Stockbridge	Adams House
Copeland, Lloyd Bardwell	Colrain	10 Kendrick Place
Cousins, Ivan Roper	Greenfield	110 Franklin Street, Green field
Cowles, Donald Harry	Brighton	Lambda Chi Alpha
Cox, William Hayward	Bridgewater	33 Lincoln Avenue
Crosby, Justina Cotta	Newton Centre	64 Lincoln Avenue
Crowley, Shelagh	West Springfield	6 McClure Street
Curtis, Eleanor Savel	Worcester	8 Mt. Pleasant
Czajkowski, Mildred Ann	Amherst	R.F.D. Box 107
Damon, Marjorie Eva	Haydenville	Sigma Beta Chi
Davenport, Beatrice Louise	Mendon	Care of W. S. Mueller, East Pleasant Street
Decatur, Dorothy Mary	Wayland	Adams House
Decker, Roger Herman	Westfield	Alpha Gamma Rho
Degraff, Raymond Alphonse	Holyoke	Q. T. V.
Dimock, Edgar Wellwood	Oxford	Q. T. V.
Dixon, Ethel Winnifred	Leverett	Leverett
Doherty, Joseph Anthony	Revere	North College
Dorman, Kenneth Ronald	Gilbertville	Sigma Phi Epsilon
Dyer, Doris Hopkins	Saugus	Sigma Beta Chi
Eaton, Eilzabeth Dockham	Holyoke	Lambda Delta Mu
Eldridge, Eva Margaret	South Yarmouth	Sigma Beta Chi
Eldridge, Everett Warner, Jr.	Palmer	Theta Chi
Elliott, Richard Duncan	Winchester	Sigma Alpha Epsilon
Enright, Thomas Joseph	Pittsfield	84 Pleasant Street
Esson, Marjorie Harrold	Dorchester	Adams House
Estabrook, Frederick Dickinson	Florence	Kappa Sigma
Fanning, Francis Thomas	Milton	Phi Sigma Kappa
Farren, Francis John	Adams	Sigma Phi Epsilon
Fay, Leo Daniel	Boston	Q. T. V.
Featherman, Maurice	Natick	Alpha Epsilon Pi
Fisher, Myron Wolf	Winthrop	North College
Fitts, Eleanor Frances	Northboro	115 Butterfield Terrace
Fitzpatrick, William Henry	Amesbury	North College
Flynn, Elizabeth Peer	Belchertown	Belchertown State School
Foerster, Wilma Ruth	Holyoke	45 Lawler Street, Holyoke
Fogel, Bertram	Roxbury	Alpha Epsilon Pi
Folkner, Joseph Samuel	Denver, Colorado	27 Fearing Street
Fortin, Constance Claire	Holyoke	Phi Zeta
Foster, Ralph Longwell	Colrain	Colrain
Fowell, Donald Maxwell	Northampton	95 Maynard Road, Northampton
Galvin, John Joseph	Northampton	5 Edward's Square, Northampton
Giles, Richard Alden	Cummington	Sigma Alpha Epsilon
Glick, John Ferol	Amherst	Kappa Sigma
Glow, Lewis Lyman	East Pepperell	101 Pleasant Street
Goldberg, David	Northampton	276 State Street, Northampton
Goldman, Sylvia	Worcester	30 North Prospect Street
Goode, Frederick Dickinson, Jr.	Auburndale	Theta Chi
Gordon, Harold Thomas	Holyoke	13 Phillips Street
Gove, Chester Allen	Walpole	Phi Sigma Kappa
Grant, Emerson Wallace	Middleboro	Phi Sigma Kappa
Graves, James Oliver Stanley	Greenfield	Alpha Gamma Rho
Griffin, Charles William	Holyoke	North College
Gunness, Marion Elizabeth	Amherst	105 Butterfield Terrace
Hall, Bettina	Foxboro	6 McClure Street
Handforth, Thomas Edward	West Medway	9 Fearing Street
Hanigan, William James, Jr.	Springfield	7 Chestnut Street
Harris, Marjorie Eulala	Leominster	8 Allen Street
Haylon, George Joseph	Pittsfield	Lambda Chi Alpha
Haynes, Paul Harlow	Southbridge	North College
Healy, Frank Clifford	Buckland, Conn.	3 Nutting Avenue
Herman, Jeanette	Roxbury	30 North Prospect Street
Hooker, Leland Worthington	Springfield	6 North Hadley Road
Hornbaker, David Winford	Worcester	Theta Chi
Howe, William Wallace, Jr.	Dalton	Theta Chi
Howes, Herbert Shurtleff	Middleboro	Kappa Sigma
Jablonski, Stephen Malcolm	Greenfield	11 Phillips Street
Jasper, Elizabeth Shirley	Springfield	6 McClure Street
Javorski, Joseph John	Thompsonville, Conn.	46 Pleasant Street
Johnson, David Hammond	Suffield, Conn.	Sigma Phi Epsilon
Johnson, Lawrence Edward	Holyoke	Kappa Sigma

lian, Charles Nelson	Amherst	4 Farview Way
aplan, Arthur Milton	Chelsea	North College
aplinsky, Anne Fern	Holyoke	Draper Hall
atz, Coleman	Roxbury	Phi Lambda Tau
eefe, Mary Margaret	Westfield	McClure Street
erivan, Katherine Eleanor	Newton Upper Falls	Care of E. S. Carpenter, McClure Street
ertzman, Louis	Somerville	Alpha Epsilon Pi
eyes, Edmund Mac	Amherst	R.F.D. 2
ng, James Sumner	Maynard	Lambda Chi Alpha
ngsbury, Aileen Louise	Braintree	77 South Pleasant Street
oehler, Dorothy Lillian	Greenfield	Adams House
owka, Stanley Joseph	Northamton	108 Franklin Street, Northampton
wson, Donald Seabury	Waltham	Phi Sigma Kappa
sclair, Leo Joseph	Amherst	11 South Pleasant Street
e, Richard Everett	New Bedford	Lambda Chi Alpha
hr, Charles Edward	Springfield	Alpha Sigma Phi
vin, Leonard Maurice	Northampton	35 Maple Street, Northampton
chtenstein, Parker Earl	Melrose	6 North Hadley Road
ppincott, Clifford Ellwood	Lee	Phi Sigma Kappa
tchfield, Marjorie	Hyde Park	Sigma Beta Chi
ice, Clifford Norton	Worcester	Theta Chi
yman, Thomas Graves	Easthampton	North College
nch, Julia Mary	Westfield	Care of E. S. Carpenter, McClure Street
acDonald, Margaret Phyllis	Huntington	Lambda Delta Mu
acPhail, William Anderson	North Plymouth	Kappa Sigma
adden, Margaret May	Methuen	Adams House
alkin, Isaac Edward	Chelsea	86 Pleasant Street
artin, Justine Gordon	Jamaica Plain	Lambda Delta Mu
aschin, Marian Isabel	Westfield	Adams House
ayo, Donald Stewart	Framingham	Alpha Sigma Phi
cCowan, William Blake	Worcester	Alpha Sigma Phi
eehan, James	Lawrence	Thatcher Hall
eehan, Mary Theresa	Holyoke	Draper Hall
endall, Seaton Crawford	Middleboro	7 Chestnut Street
errill, Frances Somerville	Raynham Center	Adams House
eurer, Ethel	Springfield	114 Butterfield Terrace
ickelson, Clara Evelyn	Millbury	Adams House
iller, Alexander Andrew	East Hartford, Conn.	32 North Prospect Street
ilne, Douglas Duncan	Larchmont, N. Y.	Sigma Alpha Epsilon
oore, Harold Emery, Jr.	Sharon	Phi Sigma Kappa
oorehead, Fulton Albert	Melrose	Phi Sigma Kappa
orey, Clifton Wentworth	Belmont	Kappa Sigma
orin, Edward Lawrence	Amherst	1 McClure Street
orse, Laura Edison	Belmont	Lambda Delta Mu
uller, Robert Harold	Darien, Conn.	Lambda Chi Alpha
yerson, Alvan John	Brookline	Alpha Epsilon Pi
ajar, Gordon Ellery	Housatonic	Phi Sigma Kappa
estle, Shirley Elizabeth	Amherst	Triangle Street
ichols, Dorothy Elizabeth	Westfield	Adams House
orwood, Olive Freeman	Worcester	Sigma Beta Chi
Donnell, Grace Patricia	Westfield	McClure Street
son, Elizabeth Janet	Manchester	Adams House
len, Samuel	Holyoke	North College
ckard, Robert Wesley	Worcester	Theta Chi
arker, John Alfred	Ashby	Theta Chi
arks, Nancy	Sherborn	Sigma Beta Chi
armenter, Ray	Franklin	Alpha Sigma Phi
aul, Joseph	Northampton	359 Bridge Street, Northampton
ereira, George Anthony	Holyoke	Q. T. V.
nelps, Ellsworth, Jr.	Northampton	Sigma Alpha Epsilon
ckard, Lawrence Kent	Salisbury	Care of Dr. Lindsey, Mt. Pleasant
odolak, Stanley	Easthampton	Sigma Alpha Epsilon
owers, Richard Lyman	West Springfield	Sigma Phi Epsilon
ratt, John Jacob	Cohasset	84 Pleasant Street
urnell, Frederick	Amherst	2 Tyler Place
ushee, Virginia	Amherst	North Amherst
athbone, Frances Bullard	Haverhill	Sigma Beta Chi
eade, Irvin Douglas	Whitman	Q. T. V.
eiser, Milton Paul	Malden	54 Pleasant Street
ichardson, Eunice Moore	Baldwinsville	30 North Prospect Street
iel, Francis James	Turners Falls	East Experiment Station
oberts, Everett	Quincy	Q. T. V.
odda, Charles, Jr.	Springfield	Lambda Chi Alpha
ose, Harold Davies	Medford	North Amherst
osen, Sidney	Dorchester	21 Paige Street
osenthal, Morris	West Springfield	Care of Wentworth, East Pleasant Street
oss, Albert Henry	Dorchester	62 Pleasant Street
almela, Henry Arthur	Maynard	Q. T. V.
annella, Joan Rosina	Springfield	6 McClure Street
avage, James Harvey	Lynnfield Center	4 Sunset Court
chmidt, Vincent Raymond	New Bedford	Thatcher Hall
chwartz, Ernest	Springfield	Phi Lambda Tau
edoff, Bernice	Winthrop	Adams House

Sheehan, Eleanor Louise	Holyoke	Care of E. F. Gaskill, North Pleasant Street
Shipman, Lee Charles	Worcester	Alpha Sigma Phi
Sinclair, Belva Marie	Northampton	33 Prince Street, Northampton
Slater, Charles Edward	Tyringham	Sigma Alpha Epsilon
Smart, Raymond Elmer, Jr.	North Amherst	Leverett Road, North Amherst
Smith, Francis Eliot	Arlington	North College
Snow, Bethany Parker	West Roxbury	Adams House
Southwick, Franklin Wallburg	White Plains, N. Y.	Lambda Chi Alpha
Spelman, George Joseph	Amherst	35 East Pleasant Street
Spofford, Inez Evelyn	Haverhill	Adams House
Stawiecki, Edmond	Webster	Q. T. V.
Steff, Howard Newton	North Dartmouth	109 Butterfield Terrace
Steinberg, Jacob	Chelsea	Alpha Epsilon Pi
Stetson, Courtney Junior	Gardner	Theta Chi
Stoddard, Edward Forrest	Framingham	Alpha Sigma Phi
Stomberg, Marion King	Florence	Alpha Lambda Mu
Stone, Norman Edward	Brookline	Alpha Epsilon Pi
Suomi, Martti Ilmari	Wellfleet	Sigma Alpha Epsilon
Swanson, Robert Warren	Rockport	Durfee Range
Tannenbaum, Leo Wolf	Roxbury	170 North Hadley Road
Taylor, Bernice Eleanor	Belchertown	Belchertown
Thomas, Gordon Franklin	East Bridgewater	Q. T. V.
Townsend, John Vincent	South Hadley	Alpha Sigma Phi
Truran, Margaret Elizabeth	Stockbridge	Care of Mrs. Mueller, East Pleasant Street
Ullman, Robert Edgerton	Northampton	North College
Vittum, Morrill Thayer	Ward Hill	Sigma Alpha Epsilon
Wakefield, Walter Thompson	Worcester	Theta Chi
Ward, Eleanor	Springfield	Adams House
Warner, Elizabeth Rose	Sunderland	Adams House
Warren, Francis Albert	Ashfield	Lambda Chi Alpha
Welch, Ervin Leonard	Melrose	Mt. Pleasant Inn
West, Mary Lees	New Bedford	Care of E. S. Carpenter, McClure Street
Whitcomb, Marciene Ramsdell	South Hadley Falls	Sigma Phi Epsilon
White, Ralph Wilfred	Brighton	Phi Sigma Kappa
Whitney, Julie Mead	Orange, Conn.	Lambda Delta Mu
Wilcox, Edmund Gillette	Stockbridge	Theta Chi
Wilcox, Marjorie Frances	Pittsfield	Adams House
Wilke, Gerhard Max	Holyoke	North College
Willard, Edward Buck	Wollaston	Sigma Alpha Epsilon
Wilson, Elliot Tilden	Weymouth	Care of Dr. Lindsey, Mt. Pleasant
Wilson, Merton Frederick	South Hadley Falls	West Experiment Station
Winn, Jay Henry	Brookline	Alpha Epsilon Pi
Wirtanen, Leonard Charles	Quincy	42 McClellan Street
Wojtasiewicz, Henry	Chicopee	66 Lincoln Avenue
Yourga, Frank John	Greenfield	Care of Dr. Lindsey, Mt. Pleasant
Zajchowski, Walter Andrew	Chicopee	66 Lincoln Avenue
Zaskey, Lucy Ann	Amherst	R.F.D.
Zelazo, Stanley Frank	Adams	11 Phillips Street

Class of 1940

Abramovitz, Sydney	Beverly	Care of Wentworth, East Pleasant Street
Abrams, Betty Vegnes	Springfield	Adams House
Adelson, Arthur	Chelsea	North College
Alvord, Erma Stuart	Turners Falls	Phi Zeta
Archibald, Jean Marie	North Amherst	Leverett Road
Atwater, George Leonard	Westfield	Phi Sigma Kappa
Bak, Mildred Marion	Hadley	Hadley
Banuzkewic, Anna Matilda	Pittsfield	12 North East Street
Barnard, Vincent Jason	North Adams	Lambda Chi Alpha
Barney, Charles Henry	South Hadley	Sigma Alpha Epsilon
Barton, Beryl Hazel	North Adams	24 Fearing Street
Bates, Mary Elizabeth	Pittsfield	8 East Pleasant Street
Beagarie, Bernard James	Greenfield	7 Prospect Avenue, Greenfield
Beames, Geoffrey, Hamilton	Falmouth	35 Lincoln Avenue
Benemelis, Robert Lorenzo	Holyoke	Birch Lawn
Bernstein, Robert Harold	Springfield	Phi Lambda Tau
Beytes, Deane Allen	North Plymouth	Kappa Sigma
Birchard, Eleanor	Springfield	Care of R. Haskins, North Pleasant Street
Blake, Richard Franklin	Southville	Q. T. V.
Blasko, John Edward	Amherst	174 Sunset Avenue
Blauer, Harris	Brookline	North College
Bluemer, Charlotte Esther	Holyoke	Southampton Road, Box 85, Holyoke
Bowen, Earl Kenneth	West Springfield	President's House
Bowler, Richard Norman	Westfield	84 Pleasant Street
Bowman, Louise	Medford	Care of Mrs. Morley, Mt. Pleasant
Boyd, Glenn David	Amherst	16 Fearing Street

Bradshaw, Marie Tullner	Chicopee Falls	Adams House
Brault, Clement Edmond	New Bedford	Alpha Gamma Rho
Brown, Roger Whittemore, Jr.	Lexington	84 Pleasant Street
Buckley, James Bernard	Springfield	5 Allen Street
Burakoff, Morris Hyman	Boston	6 North Hadley Road
Burns, Herbert Vane	Gloucester	42 Lincoln Avenue
Campbell, Janet Whittemore	Springfield	Sigma Beta Chi
Carpenter, Millicent	Worcester	Care of Mrs. Morley, Mt. Pleasant
Carroll, Leo Gary	Bridgewater	27 Fearing Street
Cashman, Robert Norman	Easthampton	22 Searle Avenue, Easthampton
Chalfen, Melvin Harold	Boston	6 North Hadley Road
Chapin, Hazel Ruth	Sheffield	24 Fearing Street
Chapman, Robert Morgan	Belmont	Kappa Sigma
Clark, Edith Marjorie	Sunderland	Care of E. F. Gaskill, North Pleasant Street
Cohen, Isadore	Dorchester	Phi Lambda Tau
Cole, Frederick John	Springfield	Care of L. C. Allen, Old Town Road
Cooper, Kathleen Freda	Amherst	105 Butterfield Terrace
Copson, David Arthur	Dorchester	81 Pleasant Street
Corcoran, Anne Katherine	Stoneham	8 East Pleasant Street
Cowling, Douglas Hadfield	West Concord	Care of L. C. Allen, Old Town Road
Creesy, Lorraine	Newton	Phi Zeta
Creswell, Robert Miller	Worcester	Kappa Sigma
Curran, George Morton	Northampton	17 Madison Avenue Northampton
Dailey, Gerald Michael	Dorchester	Kappa Sigma
Daley, Frank Robert Lee	Holyoke	Q. T. V.
Dalton, Frank Herbert	Greenfield	81 Pleasant Street
Davis, Franklin Milton, Jr.	Waltham	Theta Chi
Davis, Ida Bessie	East Taunton	10 Kellogg Avenue
Dec, Anne Sophie	Hadley	8 West Street, Hadley
Deneault, Emile Eugene, Jr.	Greenfield	101 High Street, Greenfield
Donahue, Charlotte Lee	Newton Lower Falls	8 East Pleasant Street
Doran, Katherine Hazel	Amherst	26 Lincoln Avenue
Downs, Currie Hayes	Lynn	Alpha Sigma Phi
Dunham, Agnes Armstrong	Valatie, N. Y.	Adams House
Dunn, Robert Francis	Pittsfield	Lambda Chi Alpha
Eaton, Robert Bowker	Waltham	North College
Everson, Laura Verlin	North Amherst	North Amherst
Fanning, Paul Richard	Milton	Phi Sigma Kappa
Farnsworth, Reaetta Barbara	Worcester	Adams House
Ferriter, Paul Thomas	Westfield	83 Pleasant Street
Filios, John Edward	Westfield	Stockbridge Hall
Finik, Stanley Theodore	South Hadley Falls	Box 29, South Hadley Falls
Firth, Margaret Asquith	Lawrence	8 Allen Street
Flanagan, George Francis	Easthampton	Sigma Phi Epsilon
Fleming, Urban Cyril	Holyoke	53 Howard Street, Holyoke
Foley, Robert Thomas	Turners Falls	10 Nutting Avenue
Foley, William Gregory	Salem	Lambda Chi Alpha
Foster, Willard Olcott	Marion	Theta Chi
Fox, Alex	Springfield	86 Pleasant Street
Fox, Bernard Hyman	Malden	Care of Wentworth, East Pleasant Street
Fram, Harvey	Worcester	Sigma Alpha Epsilon
Fram, Paul	Worcester	3 Nutting Avenue
Freeman, Lawrence John	Southbridge	Sigma Alpha Epsilon
Gale, Virginia	Marblehead	8 East Pleasant Street
Geoffrion, Philip Carl	West Springfield	Sigma Phi Epsilon
Gillmore, Vern Winslow	Gilbertville	Alpha Gamma Rho
Glashow, Arnold Irving	Roxbury	21 Paige Street
Glass, Robert Butterfield	Arlington	Theta Chi
Glazier, Thelma Nellie	Leverett	Leverett
Gleason, Charles Leslie	Hanover	Kappa Sigma
Glendon, Richard Russell	Winchester	North College
Goodwin, William Francis	Winthrop	83 Pleasant Street
Gordon, Mark Harold	Springfield	17 Phillips Street
Gould, Evelyn Atherton	Walpole	Adams House
Graves, Myra Campbell	Sunderland	Sunderland
Greenberg, Sidney	Springfield	5 McClellan Street
Gregg, Burton William	Westminster West, Vt.	Care of L. C. Allen, Old Town Road
Griffin, Harold Emory, Jr.	Dorchester	North College
Hagelstein, Arthur Alexander	Stoughton	Alpha Gamma Rho
Hager, Myron Dexter, Jr.	South Deerfield	Inwood
Hall, Frieda Lillian	Braintree	Adams House
Hall, John Walton	Marshfield	35 Lincoln Avenue
Hanley, Robert Hayes	Hopedale	North College
Harding, Malcolm Bennett, Jr.	Westfield	Phi Sigma Kappa
Herrick, Thomas Waldo, Jr.	South Duxbury	Kappa Sigma
Hill, Ralph Brewer	Ipswich	83 Pleasant Street
Hopkins, Franklin	Leverett	Leverett
Howe, Arthur Fenner	Brockton	84 Pleasant Street
Howe, Elizabeth Margaret	Pittsfield	Phi Zeta

Hoxie, Howard Mason	Northampton	44 North Elm Street, Northampton
Hughes, Fredrick Kenneth	Holyoke	North College
Irwin, Marjorie Bush	Palmer	Phi Zeta
Irzyk, Albin Felix	Salem	66 Lincoln Avenue
Jackson, Olive Georgina	Monson	22 Fearing Street
Jacobs, Priscilla	Holliston	Care of A. M. Davis, North Amherst
Jakobek, John Chester	Hadley	Hadley
Jaquith, Richard Herbert	Northampton	48 Massasoit Street, Northampton
Jewell, Eleanor Frances	Worcester	Adams House
Johnson, Alberta Margaret	Southwick	Sigma Beta Chi
Johnson, Louis Fingal, Jr.	Gloucester	35 Lincoln Avenue
Johnson, Margery Deane	Ashland	Care of E. S. Carpenter, McClure Street
Jones, Robert Lincoln	Princeton	Kappa Sigma
Joyce, Robert Arthur	Florence	291 Locust Street, Florence
Kennedy, Robert Charles	North Dartmouth	French Hall
Keville, Francis Bartholomew	East Lynn	Lambda Chi Alpha
Kirsch, John Forrest	Springfield	11 Phillips Street
Kohls, Rosa Frieda	Dorchester	19 Phillips Street
Kokins, Carl Ernest	Ashland	Pleasant Street
Krauss, Herbert	Dorchester	Phi Lambda Tau
Lamon, Ruth Daisy	North Adams	Adams House
Langworthy, Everett Walter	Chester	4 Sunset Court
Lanoue, Roland Eugene	Brockton	Care of Professor Thies, Pleasant Street
Larkin, Joseph Phelps	Watertown	Sunset Court
Lavrakas, Vasilis	Watertown	Sunset Court
Leete, Catherine Martin	Briarcliff Manor, N. Y.	Care of Mrs. Morley, Mt. Pleasant
Lepine, Arthur Joseph	Holyoke	North College
Levitch, Gerald Joseph	New York, N. Y.	98 Conway Street, Greenfield
Levy, Roma Dina	Pittsfield	16 Nutting Avenue
Lindsey, Roger Hurlin	Ware	Care of L. C. Allen, Old Town Road
Little, Barbara	Newburyport	Adams House
Luce, Nancy Elizabeth	Fitchburg	Sigma Beta Chi
Luce, Phillips Edward	Framingham	Alpha Sigma Phi
Mahoney, Donald John	Holyoke	Kappa Sigma
Malcolm, James Walter	Holyoke	83 Pleasant Street
Malins, Dana Harold	Brighton	Alpha Epsilon Pi
Malley, William Joseph	Thompsonville, Conn.	17 Phillips Street
Malm, Irma Isabel	Worcester	Adams House
Mansfield, Charles Francis	Taunton	4 Sunset Court
Marriott, Roland Charles	Ashfield	Box 743, Ashfield
Marsh, Robert Kendall	Rutland	Alpha Gamma Rho
Marshall. Helen Alison	Amherst	Pelham Road
Martin, Robert Ansel	Pittsfield	10 Nutting Avenue
Matuszko, Victoria Katherine	Amherst	Box 166, R.F.D. 3
McAndrew, Gerald Edward	Barre	11 Phillips Street
McCarthy, John Joseph	Worcester	11 Phillips Street
Merrill, Dorothy	Norwood	Alpha Lambda Mu
Merrill, John Edward, Jr.	Southbridge	Kappa Sigma
Miller, John Calvin	Charlton	North College
Monk, Carolyn Emma	Groton	Care of Harold Hobart, North Amherst
Moriece, Paul	Mendon	101 Pleasant Street
Morley, Dorothy Ruth	Amherst	Mt. Pleasant
Morris, Herbert Irving	Dorchester	Alpha Epsilon Pi
Morse, Roy Earl	Boston	4 Sunset Court
Moseley, Maynard Fowle	Allston	Birch Lawn
Mosher, Robert Henry	Holyoke	Alpha Sigma Phi
Muller, Richard Kenneth	Amherst	13 Fearing Street
Murphy, John Joseph	Lynn	Phi Sigma Kappa
Nelson, Carl Felix	Gardner	35 Lincoln Avenue
Neznayko, Michael	Hadley	Amherst R.F.D. Box 215
Nietupski, Dominic Edward	North Wilbraham	North College
Norwood, Lewis Frank	Rockport	French Hall
Novelli, G. David	North Agawam	Alpha Sigma Phi
Noyes, Arthur Alfred	Waban	Theta Chi
Nutting, William Brown	West Boylston	Care of Dr. Alexander, Old Town Road
O'Connell, Daniel John	South Hadley Falls	5 Allen Street
Oertel, Priscilla May	South Hanson	8 Allen Street
O'Neill, John Raymond	Holyoke	220 Sargent Street, Holyoke
Osmun, John Vincent	Amherst	16 Northampton Road
Palumbo, Ralph Francis	Leominster	6 North Hadley Road
Patton, Willard Ginn	North Amherst	Cushman
Payson, James Warren, Jr.	Millis	Theta Chi
Pease, Virginia Helen	Amherst	13 East Pleasant Street
Pelissier, Helene Elizabeth	Hadley	Alpha Lambda Mu
Phillips, Lester LeRoy, Jr.	Pittsfield	North College
Pike, Kenneth Vernon	Pittsfield	Alpha Sigma Phi
Pitts, George Thomas, Jr.	Beverly	President's House
Plichta, Richard John	Amherst	Strong Street
Podolak, Edwin Michael	Hadley	Hadley
Powers, Charles Arthur, Jr.	Braintree	Kappa Sigma

Powers, John Joseph	Pittsfield	Sigma Alpha Epsilon
Pratt, Esther	Greenwood	Alpha Lambda Mu
Prouty, Leroy Fletcher, Jr.	Springfield	66 Lincoln Avenue
Reagan, Lawrence Hunneman	Dorchester	Clark Hall
Reinap, Mia	Framingham	Care Mrs. Hobart, North Amherst
Reisman, Melvin	Brighton	Phi Lambda Tau
Rice, Katherine Louise	Springfield	Alpha Lambda Mu
Richards, William Henry, Jr.	Northampton	4 Sunset Court
Robbins, Patricia Jane	Worcester	Care of E. F. Gaskill, North Pleasant Street
Rodman, Robert	Dorchester	Alpha Epsilon Pi
Roffinoli, Rino Joseph	Williamstown	Alpha Sigma Phi
Rosen, Sidney Walter	Lynn	3 Nutting Avenue
Rossman, Edwin Malcolm	Allston	Alpha Epsilon Pi
Rourke, Dorothy Jean	Springfield	16 Nutting Avenue
Rudge, Alfred Howard	Worcester	20 Pleasant Street
Russell, Sylvia	Lynnfield Centre	19 Fearing Street
Ryan, Winslow Edwin	Hudson	Thatcher Hall
Saltzman, Theodore	Roxbury	Care of Wentworth, East Pleasant Street
Sanderson, James Joseph	Becket	North College
Santucci, Leo Joseph	Palmer	97 Pleasant Street
Saunders, Francis Richard	Gloucester	17 Phillips Street
Sawyer, David	Dorchester	Alpha Epsilon Pi
Scholz, Evi C.	State Line	North College
Schoonmaker, Norman James	Amherst	South East Street
Schreiber, Henry Marcus	Winthrop	Alpha Epsilon Pi
Serex, John Paul	Amherst	69 Lincoln Avenue
Shapiro, Everett	Mattapan	Phi Lambda Tau
Shaw, Donald Houghton	Belmont	Care of Professor Sears, Mt. Pleasant
Shaw, Marjorie Clarinda	Belchertown	Alpha Lambda Mu
Sheldon, Robert Irving	West Springfield	Lambda Chi Alpha
Shepardson, Daniel Edgar	Athol	Sigma Alpha Epsilon
Shepardson, Wilfred Britton	Athol	Sigma Alpha Epsilon
Sherman, Arthur	Lanesboro	200 North Pleasant Street
Siegal, Sidney Carl	Winthrop	13 Hallock Street
Silberberg, Bernard	Dorchester	North College
Silfen, Alfred Jay	Springfield	North College
Slater, Edgar Burton	Tyringham	84 Pleasant Street
Smalley, Dorothea Florentina	Worcester	10 Chestnut Street
Smith, Alan Clark	West Newton	Theta Chi
Smith, Frank Browne	Holyoke	10 Parker Street, Holyoke
Smith, John	Southwick	Alpha Gamma Rho
Smith, Marion Marjorie	Springfield	19 Fearing Street
Spencer, Everett Royal, Jr.	Holyoke	22 Sunset Avenue
Spencer, Frank Henry	Northampton	439 Elm Street, Northampton
Spofford, Elizabeth Harriet	Lee	10 Chestnut Street
Spungin, Sidney	Greenfield	Phi Lambda Tau
Stahlberg, Eric	Northampton	Kappa Sigma
Stanisiewski, Frank Raymond	Amherst	Triangle Street
Staples, Robert	Northampton	33 Olive Street, Northampton
Stewart, Jacqueline Louise	Amherst	65 Lincoln Avenue
Stewart, Mary Allerton	South Duxbury	Draper Hall
Storey, Harold Frederick	Millis	Theta Chi
Stranger, Homer Lincoln	Kingston	Alpha Sigma Phi
Straube, Harold Louis	Bloomfield, N. J.	4 Sunset Court
Sullivan, Albert William	South Hadley Falls	North College
Sullivan, Eugene Francis	Willimansett	487 Chicopee Street, Willimansett
Swenson, John William	Worcester	Lambda Chi Alpha
Talbot, Gerald Lloyd	Springfield	11 Phillips Street
Tappin, Warren Rawford, Jr.	Winchendon	Lambda Chi Alpha
Taylor, Priscilla Winslow	Jamaica Plain	Adams House
Taylor, Roy Clifton	Greenfield	North Pleasant Street
Terry, Dean Thomas	Palmer	North College
Tiberii, Chester Howard	Charlton	North College
Tobey, George Burton, Jr.	Framingham	Alpha Sigma Phi
Trees, Malcolm Parker	Maynard	23 East Pleasant Street
Tuttle, Matthew Nathan	Revere	21 Paige Street
Twyble, Carlton William	Gilbertville	North College
Vannah, Margaret Viola	Monson	15 Fearing Street
Webber, Helena Joan	Winchendon	14 Beston Street
Wetherbee, Robert Thomas	Bolton	97 Pleasant Street
Wetherell, Howard Dexter	Westfield	North College
Wheeler, Esther Hammond	Manchester, N. H.	5 North East Street
Wilansky, Nathan Leonard	Holyoke	54 Ridgewood Avenue, Holyoke
Wing, Francis	Sandwich	Theta Chi
Winter, Wilfrid Murray	Wrentham	Alpha Gamma Rho
Witek, John Joseph	Greenfield	55 Colrain Street, Greenfield
Wolfe, John Ferris	Winchester	Alpha Gamma Rho
Wood, Beatrice	West Upton	Care of Mrs. Morley, Mt. Pleasant
Wyman, Wallace Warren	Westfield	Alpha Gamma Rho
Zabierek, Julian Henry	Chelmsford	O. T. V.
Zelbovitz, Myer Samuel	Chelsea	North College

Class of 1941

Agambar, Rose Elaine	Holyoke	3 Cosby Avenue
Ahearn, Helene Dorothy	Winthrop	Adams House
Ajauskas, Casty John	Brighton	Thatcher Hall
Alexion, Lazarus	Fairhaven	Thatcher Hall
Allan, Donald Pearson	Fitchburg	Thatcher Hall
Allen, Gordon	Concord	Thatcher Hall
Allen, Vernon Cooke	Millis	North College
Anderson, Edward Everett	Middleton	Thatcher Hall
Anderson, Rita Marjorie	East Bridgewater	c/o Mrs. Cooley, North Amherst
Antaya, Helen Mae	Ware	30 No. Prospect Street
Archibald, Gladys Glencross	North Amherst	Leverett Road, North Amherst
Aroian, Haig	Oxford	North College
Ashley, Edward Wilmarth	East Freetown	Thatcher Hall
Auerbach, Gabriel Irving	Springfield	Thatcher Hall
August, George Seymour	Northampton	19 Fruit Street, Northampton
Aykroyd, Albert Wesley	Worcester	83 Pleasant Street
Babbitt, Robert Todd	Wellesley Hills	Thatcher Hall
Badger, Ellen Priscilla	Norwood	Adams House
Bagge, Francis Gerald	Hyde Park	42 McClellan Street
Bailey, Cynthia Haven	Kingston	Adams House
Baker, Harry Louis	Malden	Thatcher Hall
Baker, Mariely	Amherst	28 Northampton Road
Ball, Annetta Harriman	Dalton	Adams House
Balmer, Edward	Whitinsville	Mt. Pleasant Inn
Bardwell, Allan Ralph	Florence	122 Pine Street, Florence
Barreca, Peter Joseph	Pittsfield	Thatcher Hall
Barrus, Ruth Emeline	Lithia	Adams House
Bartosiewicz, Joseph	Northampton	51 Maple Street, Northampton
Bascom, Elizabeth Blanche	Leverett	Leverett
Beaubien, Rosalie Agnes	Millers Falls	3 Cosby Avenue
Beckett, Norman James	Somerville	Thatcher Hall
Bennett, Harrison Lee	South Sudbury	Thatcher Hall
Bergeron, Kenneth Taylor	Worcester	North College
Bergstrom, Evelyn Sofia	Pittsfield	Adams House
Bernson, Richard Jolles	Brookline	56 Pleasant Street
Bialer, Isaac	Holyoke	Thatcher Hall
Biederman, Jerome	Dorchester	83 Pleasant Street
Blodgett, Richard Alden	Springfield	Thatcher Hall
Bolt, Ernest Albert, Jr.	Windsor	83 Pleasant Street
Bornstein Merton Philip	Winthrop	Thatcher Hall
Bourne, John Bodfish	Buzzards Bay	Thatcher Hall
Boylan, Lawrence Joseph	Franklin	Thatcher Hall
Brack, John Joseph	Dorchester	Thatcher Hall
Bradley, Roberta Helen	Southfield	Adams House
Bragdon, George William	Methuen	Thatcher Hall
Breglio, Robert Anthony	Chicopee	83 Pleasant Street
Brewster, David Truman	Hathorne	81 Pleasant Street
Brielman, Marguerite	Pittsfield	Adams House
Briesmaster, Harold Arnold	East Northfield	North College
Broderick, Edward	Willimansett	Thatcher Hall
Brown, Elizabeth Willard	Holyoke	40 Norwood Terrace, Holyoke
Brox, Albert Charles	Dracut	Thatcher Hall
Budz, Chester Herman	Housatonic	Thatcher Hall
Bunk, Ralph Francis	Beverly	North College
Burgess, Shirley Marie	Brockton	Adams House
Burke, Edward Leon	Arlington	Thatcher Hall
Burr, Clement Franklin	Easthampton	Thatcher Hall
Cadwell, Garnet Louise	Orange	Adams House
Calkins, Dorothy	Harvard	Adams House
Callanan, Katherine Tappan	Braintree	Adams House
Campbell, Sylvia	Palmer	Adams House
Carew, Pauline Isabel	Worcester	Adams House
Carlson, Frank Albert, Jr.	Westfield	Thatcher Hall
Cherenson, Seymour Allen	Winthrop	Thatcher Hall
Clare, Kathleen Jean	Easthampton	Adams House
Coates, Virginia Mae	New Bedford	Adams House
Coffey, William Sebastian	Northampton	9 Sanderson Avenue, Northampton
Cohen, Arthur Irving	Springfield	2 Allen Street
Cohn, Herbert Morton	Springfield	Thatcher Hall
Cole, Alton Brigham	West Medway	Thatcher Hall
Cooney, Ann Wilhelmina	Northampton	212 Bridge Street, Northampton
Crafts, Elizabeth Mary	Whately	21 Fearing Street
Crerie, Richard Graham	Worcester	Thatcher Hall
Crimmin, Ruth Lillian	West Roxbury	Adams House
Crimmins, John Paul	Worcester	11 Phillips Street
Critchett, Barbara Jane	Amherst	Adams House
Curtis, Richard Browne	Marlboro	Thatcher Hall
Curtis, Varnum Pierce, Jr.	Worcester	Mt. Pleasant, c/o Sears
Daniels, Walter Thomas	Dalton	Thatcher Hall
Davenport, George Godfrey, Jr.	Hopedale	17 Phillips Street
Davis, Edward Lawrence	Chelsea	Thatcher Hall
Davis, Jean Anwyl	Waltham	8 East Pleasant Street
Decker, Muriel Elinor	Holyoke	145 Westfield Road, Holyoke

Delorey, Marion Elaine	Pittsfield	Adams House
DelPalma, Esther	Feeding Hills	Draper Hall
Desmond, Betty	Simsbury, Conn.	Adams House
Dondero, Norman Carl	Medford	Thatcher Hall
Dooley, Barbara Ann	West Roxbury	Adams House
Dooley, Paul Murray	West Roxbury	Thatcher Hall
Doyle, Mary Rita	Holyoke	18 Lynwood Avenue, Holyoke
Drew, Franklin Harmon	Pittsfield	Thatcher Hall
Drew, Frederick Prescott	Dedham	Thatcher Hall
Dukeshire, Robert Elsworth	Hopkinton	Thatcher Hall
Edson, Eugene Thomas	Lowell	Thatcher Hall
Erikson, George Emil	Palmer	Thatcher Hall
Ethier, Mary Odelia	Worcester	Adams House
Everson, Margaret Lucille	North Amherst	North Amherst
Ewing, Robert Stanley	Easthampton	Thatcher Hall
Farber, Robert Dasher	Wrentham	3 McClellan Street
Feiker, George Campbell	Washington, D. C.	200 No. Pleasant Street
Field, Frances Rosalie	Holyoke	51 Lawler Street, Holyoke
Finnegan, Eugene Joseph	Boston	Thatcher Hall
Firestone, Robert David	Holyoke	Thatcher Hall
Fish, Gladys Elizabeth	Pittsfield	13 Fearing Street
Fitch, Helen Julia	Pittsfield	M.S.C. Farmhouse
Flynn, Margaret	Willimansett	15 Fearing Street
Foley, Arthur James Gleason	Ashmont	North College
Forrest, Harold Everett	Athol	Thatcher Hall
Fotos, George	Amherst	39 Main Street
Fox, Frank Joseph	South Lee	Thatcher Hall
Frandsen, Dana Christian	Amherst	35 Lincoln Avenue
Frank, David Allen	Roxbury	Thatcher Hall
Franz, William Emil	Waterbury, Conn.	Thatcher Hall
Freedman, Marion Gertrude	Chelsea	Adams House
Freeman, Carroll Ellwood	Millbury	North College
Friedman, Carl Emil	Roxbury	Thatcher Hall
Fuller, Allan Tacy, Jr.	East Bridgewater	Thatcher Hall
Fuller, William Hall	Lancaster	Thatcher Hall
Garbowit, George Albert	Pittsfield	Thatcher Hall
Giehler, Doris Madeline	Holyoke	61 Elmwood Avenue, Holyoke
Giles, Winifred Leslie	Cummington	Adams House
Gilman, Harry Stanton	Brookline	North College
Gilson, Elisabeth	Taunton	Adams House
Gooch, Stephen Francis	North Adams	22 North Prospect Street
Goode, Anthony John	Athol	Thatcher Hall
Goodwin, Clinton Foster, Jr.	Haverhill	Birch Lawn
Goodwin, William Thomas	South Hadley	Thatcher Hall
Gordon, Joseph Robert, Jr.	Greenfield	8 Congress Street, Greenfield
Gordon, Thomas Parke	Northampton	Thatcher Hall
Gould, John Davidson	West Haven, Conn.	Thatcher Hall
Grisé, Marcelle Joan	North Brookfield	Adams House
Grisé, Pauline Viola	Ware	c/o Mrs. W. Jones, North Amherst
Hall, Barbara Anne	Taunton	13 Fearing Street
Halloran, Robert Francis	Northampton	146 Federal Street, Northampton
Hamel, George Felix	Worcester	Thatcher Hall
Harrington, Anna Elizabeth	Amherst	44 High Street
Hartley, Louise May	Westfield	Adams House
Haskell, John William	Arlington	Thatcher Hall
Hathaway, Wilfred Bostock	Taunton	Thatcher Hall
Hayes, John Michael	Worcester	Thatcher Hall
Hayward, Richard Bascom	Taunton	Thatcher Hall
Heath, Virginia Marie	Brockton	Adams House
Hendrickson, William Arlington	Scituate	c/o Prof. Sears, Mt. Pleasant
Henschel, Vivian Victoria	Boston	Adams House
Herring, Mary Eleanor	Ulster Park, N. Y.	Adams House
Hershberg, Bernard J.	Gardner	North College
Heyman, John Taylor	Springfield	Thatcher Hall
Holt, Marshall Lowell	Chelmsford Center	20 Pleasant Street
Hood, Calvin Henry, Jr.	Northampton	Rockland Heights, Northampton
Howard, Douglas Channings	Beverly	Thatcher Hall
Howard, Russell Wreath	Pittsfield	Thatcher Hall
Howland, Kenneth Arthur	South Duxbury	Thatcher Hall
Hoxie, George Perkins	Northampton	31 Bridge Street, Northampton
Hoye, Marion Barbara	Taunton	Adams House
Hubbard, Erwin Stuart	Poughkeepsie, N. Y.	Thatcher Hall
Hutchinson, Phyllis Dean	Rochdale	Draper Hall
Irvine, Walter Graves, Jr.	Worcester	Thatcher Hall
Jackimczyk, Stanley Arthur	Florence	13 Oak Street, Florence
Jackson, Donald Paul	Shrewsbury	North College
Jacobson, Woodrow Richard	Ivoryton, Conn.	Care of Professor Mackimmie, North Amherst
Jamison, James Young	Newtonville	North College
Johnson, Doris Marie	Springfield	Adams House
Johnson, Thomas Wells	Deerfield	Deerfield
Jones, Carleton Parker, Jr.	Amherst	8 Nutting Avenue
Jones, Mary Jane	Worcester	Adams House
Josephson, Elliot Harold	Boston	Thatcher Hall

Joyce, William Alan	Florence	291 Locust Street, Florence
Kabler, Muriel Ruth	Wareham	Adams House
Kagan, David Milton	Brooklyn, N. Y.	Thatcher Hall
Kaplan, Sumner Zalman	Brookline	Thatcher Hall
Keil, Dana Alton	Attleboro	Thatcher Hall
Kell, Kathleen Margaret	Stoughton	Care of E. W. Bell, East Pleasant Street
Keller, Paul Zelman	Springfield	Thatcher Hall
Kelley, Edward Jeremiah	Scarsdale, N. Y.	Thatcher Hall
Kendrick, Stanton Coy	Shelburne Falls	11 Phillips Street
King, Edwin Wallace, Jr.	Melrose	Thatcher Hall
King, Howard Francis, Jr.	Millville	North College
King, Mary Doris	Gardner	Adams House
Klaman, Solomon	Boston	Thatcher Hall
Klevansky, Milton	Roxbury	2 Allen Street
Kline, James Jacob	Dorchester	Thatcher Hall
Knight, Richard Hooper	Melrose	Thatcher Hall
Koobatian, Hiag	Worcester	North College
Krinsky, Joseph	Dorchester	3 McClellan Street
Kuralowicz, Chester Leon	Willimansett	Thatcher Hall
LaFreniere, Edward Amedée	Chicopee Falls	Thatcher Hall
Lalor, Walter Russell	Framingham	11 Phillips Street
Lane, Helen Elizabeth	East Boston	Adams House
Lane, Priscilla Elizabeth	Brockton	Draper Hall
Lapp, Thelma Eloise	Pittsfield	13 Fearing Street
Laudani, Hamilton	Lawrence	Thatcher Hall
Lavitt, Edwin Mitchell	Rockville, Conn.	Thatcher Hall
Leary, Robert Lombard	Turners Falls	Thatcher Hall
Leavitt, Stephen Bartlett	New Bedford	70 Lincoln Avenue
Leighton, Jane	Auburndale	Adams House
Lennon, William Henry	Medford	North College
Leonard, Thomas Richard, Jr.	Raynham	Thatcher Hall
Lester, Richard Henry	Ware	Thatcher Hall
Levine, Daniel Herman	Boston	North College
Levy, Beulah Sarah	Worcester	Adams House
Lobacz, Bertha Elizabeth	Amesbury	16 Nutting Avenue
Long, Dorothy Jean	Malden	Adams House
Loomis, Charles Parkhurst	Winthrop	Thatcher Hall
Lotow, Jason Ronald	Brighton	Thatcher Hall
Lovejoy, Earl Atchinson	Watertown	Thatcher Hall
Lovell, Rebecca West	Worcester	13 Fearing Street
Lucchesi, Flora Dora	Holyoke	Care of Mr. Nestle, Triangle Street
MacDonald, Francis, Jr.	Somerville	Thatcher Hall
Macdonald, Gregory John	Sturbridge	26 Fearing Street
Maisner, Stella Ruth	Leverett	Leverett
Malcolm, Ian	Charlemont	Thatcher Hall
Manix, John Charles	South Deerfield	Thatcher Hall
McCallum, Howard James	Northampton	6 Center Street, Northampton
McCarthy, Harold Timothy	Salem	Thatcher Hall
McCarthy, Richard James	Westfield	Thatcher Hall
McCartney, Robert Joseph	Salem	Q. T. V.
McFadden, Mattie Florence	Reading, Vt.	2 Farview Way
McGurl, Frederick Wilson	Worcester	Thatcher Hall
McKown, Manson Kirk	Malden	101 Pleasant Street
McLaughlin, Charles LeGro	Amherst	4 Nutting Avenue
McLaughlin, Edwin Joseph	Springfield	347 Oakland St., Springfield
McQueston, Theodore Clapp	Hadley	Thatcher Hall
Meder, Joseph Francis	Northampton	244 North Street, Northampton
Merritt, Bertha Louise	Cataumet	Adams House
Meyer, Irving	Springfield	Thatcher Hall
Miles, Walter Theodore	Dalton	Thatcher Hall
Miller, Joseph Thomas	Barre Plains	Thatcher Hall
Miller, Miriam	Brookfield	Adams House
Millett, Marion Burnham	Adams	Adams House
Minich, Roy Linden	Malden	Thatcher Hall
Moody, Lincoln David	Amherst	30 Sunset Avenue
Moreau, Robert	Guilford, N. H.	North College
Morehouse, Barbara	Newtonville	Adams House
Morrison, Sumner Martin	Roxbury	83 Pleasant Street
Morytko, John Charles	Westfield	Thatcher Hall
Motroni, Umberto Pasquale	Boston	Thatcher Hall
Nastri, Carl Albert	New Haven, Conn.	Thatcher Hall
Nelson, Robert Alfred	North Easton	Thatcher Hall
Nestle, Constance Marie	Amherst	Triangle Street
Nickolopus, John	Lynn	Thatcher Hall
Noyes, Baxter Bardwell	Greenfield	127 Lyden Road, Greenfield
Nye, John William	Needham	Thatcher Hall
Obén, Marcelo Jose	Central Aguirre, Puerto Rico	Thatcher Hall
O'Brien, Edward Joseph	Amherst	18 Nutting Avenue
O'Connor, J. Edward Emett	Holyoke	Thatcher Hall
O'Neil, Florence Marie	Ludlow	Adams House
Oppenheim, Edward Elliot	Brockton	North College
Pococha, Peter	Easthampton	Thatcher Hall
Pardee, Robert Everett	Springfield	33 Northampton Road
Parzych, Henry Myron	Greenfield	Thatcher Hall
Patten, Edith Mae	Newburyport	Adams House

Pava, Arthur Avrum	Springfield	2 Allen Street
Peters, Robert Rice	Hamden, Conn.	Thatcher Hall
Phillips, Phyllis Jeanne	Pittsfield	Adams House
Plichta, Rose Helena	Amherst	Strong Street
Powers, Wallace Frank, Jr.	Amherst	10 Fearing Street
Procopio, Paul Nickolas	Brockton	Thatcher Hall
Prusick, Alfred Adam	Greenfield	10 Devens Street, Greenfield
Prymak, John Joseph	Lawrence	Thatcher Hall
Puffer, Jean	Foxboro	Adams House
Pulnik, Bruno Francis	Hopkinton	Thatcher Hall
Putney, Chester Carlos	Orleans, Vt.	Birch Lawn
Raymond, Myrtle Irene	Beverly	Adams House
Reder, Lionel George	Pittsfield	Thatcher Hall
Reed, Stanley Copeland	Brockton	North College
Retallick, John David	Pittsfield	Thatcher Hall
Reynolds, Iona Mae	Thorndike	Adams House
Richardson, Edward Adams	Ayer	Thatcher Hall
Riseberg, Robert Bertram	Waltham	Thatcher Hall
Rivlin, Leslie Myron	Pittsfield	Thatcher Hall
Robbins, Shirley Palmer	Lexington	Care of L. C. Allen, Old Town Road
Robinson, Ada Margaret	Concord	Adams House
Rockwood, Walter Clark, Jr.	Walpole	Thatcher Hall
Rodriquez, Robert Ames	Northampton	Thatcher Hall
Ross, Doris Marie	Holyoke	Adams House
Rouffa, Albert Stanley	Brookline	83 Pleasant Street
Rucker, Russell John	Hyannis	81 Pleasant Street
Sanderson, Patience Monteith	West Roxbury	Adams House
Schenker, Hanssen	Holyoke	44 Brookline Avenue, Holyoke
Scollin, Harold Vincent, Jr.	North Quincy	North College
Scully, Marion Elizabeth	Pittsfield	Adams House
Searle, David Harold	Marblehead	Thatcher Hall
Seaver, Irving Willard	Shrewsbury	Thatcher Hall
Shanker, Benjamin Harold	Wrentham	Thatcher Hall
Shaw, Bernice Mae	Belchertown	120 Pleasant Street
Sherman, Muriel Edith	Palmer	Adams House
Sherr, Henry Benjamin	Chelsea	Thatcher Hall
Sherwin, Alden Arthur, Jr.	West Townsend	North College
Siegel, Robert	Dorchester	Thatcher Hall
Silverman, Alan	Roxbury	Thatcher Hall
Simons, Frank Melville, Jr.	Stoneham	Thatcher Hall
Simpson, Donald Angus	Holyoke	Thatcher Hall
Skogsberg, Paul Lester	Worcester	Thatcher Hall
Skolnick, David	Winthrop	Thatcher Hall
Slattery, Francis Leo	Dorchester	57 Pleasant Street
Smith, Elmer William	Florence	18 West Center Street, Florence
Smith, Frederick Edward	Bloomfield, N. J.	Thatcher Hall
Smith, Helen Margaret	Athol	Adams House
Smith, Richard Neilson	Chicopee Falls	35 Lincoln Avenue
Snow, Richard Spofford	Orleans	Thatcher Hall
Snyder, Beverley	Springfield	Care of Mrs. Nestle, Triangle Street
Sobon, Matilda Martha	Lawrence	Adams House
Soule, George Hodges	Springfield	North College
Staples, Barbara Longley	Beverly	Adams House
Steinhurst, Hyman Julius	Boston	Thatcher Hall
Stevens, Henry Albert, Jr.	Great Barrington	North College
Stewart, James Alexander M., Jr.	Amesbury	Thatcher Hall
Stewart, John Bushnell	Worcester	North College
Stone, Phoebe Isabelle	Dorchester	Adams House
Streeter, Ronald Mather	Holyoke	Thatcher Hall
Styler, Charles William	Jefferson	North College
Sullivan, Mary Margaret	Brimfield	Adams House
Szwaluk, Peter Joseph	South Deerfield	Pine Nook, R.F.D., South Deerfield
Taylor, Jean Frances	Watertown	21 Fearing Street
Taylor, Raymond Ellsworth	Malden	2 Mt. Pleasant
Taylor, Richard Bliss	Allston	22 North Prospect Street
Thayer, Raymond Winchell	Duluth, Minn.	Thatcher Hall
Thomas, Mildred Arlene	Amherst	R.F.D. 3, Box 157
Tillson, Robert Connor	Cochituate	Care of Professor Sears, Mt. Pleasant
Tolman, Marion Esther	Holyoke	30 North Prospect Street
Tolman, Phyllis	Worcester	35 East Pleasant Street
Tormey, Mary Margaret	Lenox	Adams House
Tully, Kathleen Mildred	Southbridge	21 Fearing Street
Tuttle, Lawrence Dana	Leicester	81 Pleasant Street
Twible, Ellsworth Arnold	Gilbertville	Thatcher Hall
Tyler, Jean Gates	Amherst	Stockbridge House
Underhill, Jean	South Ashfield	Adams House
VanMeter, David Farnham	North Amherst	Leverett Street, North Amherst
Vassos, Eleanore Mildred	Springfield	Adams House
Vautrain, Charles Edward, Jr.	Holyoke	Thatcher Hall
Vieweg, Herman Charles	Westminster	Thatcher Hall
Walker, Robert Norman	Winthrop	Thatcher Hall
Walkey, Thomas Edward	South Hanson	Thatcher Hall

Walsh, William Thomas	Feeding Hills	Thatcher Hall
Waltermire, Kenneth Frank	Springfield	50 Pleasant Street
Wannlund, Arthur Leonard, Jr.	Arlington	Thatcher Hall
Warner, Everett Lee	Amherst	33 Northampton Road
Warren, William Fitts	West Roxbury	Thatcher Hall
Watts, Edward Arthur	East Weymouth	Thatcher Hall
Welton, Eldredge Hinkley	Newton	Thatcher Hall
Wentworth, Eleanor Elizabeth	Amherst	Stanley Street
Wernick, Zane Paul	Springfield	
Wheatley, Harriet Elizabeth	Chester, Vt.	Adams House
Wheeler, Elizabeth Malden	Furnace	Adams House
White, Harold Bancroft	Pelham	Pelham
Wilder, Susanna	Northfield	Adams House
Wileikis, Walter Anthony	North Amherst	Summer Street, North Amherst
Williams, David	Peabody	Thatcher Hall
Williams, Jeannette	Springfield	Draper Hall
Witt, Edgar Clifton	Belchertown	R.F.D. 1, Granby
Witt, Kenneth Douglas	Belchertown	R.F.D. 1, Granby
Woynar, Helen Ann	Hatfield	153 Sunset Avenue
Wozniak, Nellie Marie	Turners Falls	21 Fearing Street
Wright, Dorothy Eleanor	Lee	Adams House
Yanow, Albert	Dorchester	2 Allen Street
Youland, Dorothy Marion	West Somerville	Adams House

Special Students

Atkinson, Edith D.	Amherst	19 Phillips Street
Boron, Mella Marion	Holyoke	26 Main Street
Burke, James William	Amherst	23 Woodside Avenue
Fishman, Morris	Northampton	400 South Street, Northampton
Hoag, Katharine Harris	Amherst	8 Hitchcock Road
Manning, Abigail Cashman	Deerfield	Deerfield
Outhouse, Elizabeth Lorraine	Shelburne Falls	Belchertown
Smith, Bessie Eunice	Springfield	Russell
Victory, Catherine Craig	Abington	Russell

Students Registered after Catalogue for 1936-37 Was Published

1937

Burke, Francis Campbell	Clinton

1940

Kosakowski, Stephen Raymond	Amherst
McCulloch, Barbara Jean	Holyoke

Summary By Classes

Class	Men	Women	Total
1938	175	69	244
1939	171	74	245
1940	196	70	266
1941	243	113	356
Specials	2	7	9
	787	333	1,120

Geographical Summary

Massachusetts	1,080	New Jersey	3
Maine	1	Maryland	1
New Hampshire	2	District of Columbia	1
Vermont	4	Colorado	1
Connecticut	14	Minnesota	1
New York	11	Puerto Rico	1
		Total	1,120

STOCKBRIDGE SCHOOL OF AGRICULTURE

Graduates, 1937

Harry Richard Acker	Hartford, Conn.
Arne John Aho	Maynard
Alex Joseph Amenda	Amherst
Howard Henry Andrews	Fitchburg
Irving Sturtevant Anthony	New Bedford
Donald Eugene Baldwin	Chicopee Falls
Stanley Wymann Bartlett	Springfield
Joseph John Banks	Marlboro
Clarence William Benson	Stoughton
Irene Bogusiawski	Amherst
Theodore Bothfeld, Jr.	Sherborn
Thomas Joseph Boyce, Jr.	Swampscott
Joseph Edwin Broughton, Jr.	Brookfield
William Ralph Burnham	Windsor, Vt.
George Barrett Bush, Jr.	Newfane, Vt.
Frederic David Callahan	Sunderland
Vincent Joseph Callahan	Harvard
Irving Henry Christensen	Hartford, Conn.
Clifford Embury Cummings	West Springfield
Harry Irving Cunningham	Framingham
Edwin Stewart Ditchett	South Weymouth
Joseph Ernest Drago	Fitchburg
John Myron Eastman	Gill
Arthur Woodrow Ecklund	Pittsfield
Robert Arnot Eisenhauer	Cambridge
Armando Emanuele	Revere
Edwin Kenneth Fife	West Springfield
Frederick Edwin Fife	West Springfield
Frederick Oswald Fischer	Vineyard Haven
Elwyn Madsen Fowles	Southampton
Alpheus Oliver Fulton	Waltham
Milton Moauro Gagliarducci	Springfield
Joseph Richard Goldrick	Jamaica Plain
Douglas Beals Graves	Ashfield
Elmer Everett Hair, Jr.	Worcester
Guilford Norman Hanks	Amherst
Arthur Nelson Hartshorn	Needham
Bernard Francis Higdon	Washington, D. C.
Robert Johnston Hodgen, Jr.	Gloucester
Welland Symons Horn	Brandon, Vt.
Arthur Wells Hoyt	Merrimac
Bernard John Jackimczyk	Florence
Frederick Emil Jansen	Stamford, Conn.
John Francis Keenan	Cherry Valley
Alvin Richard Kellogg, Jr.	Feeding Hills
Andrew Ross Kilgour	Somerville
James Michael Landers	Holyoke
Richard Bruce Leland	East Bridgewater
Roger Pierre Levreault	South Hadley Falls
Samuel Robert Lowery	Arlington
Henry Leonard Mackie	Hubbardston
Donald Nelson Mercer	Palmer
Peter William Minkus	Westfield
Michael Wasil Miskewich	Chicopee Falls
Eugene Denis Moran	Chicopee Falls
James Forbes Morrice	Vineyard Haven
Welby Francis MacCollom	Sterling
William Vialle McCormack	Kendall Green
John Angus McCoy	Belmont
Eugene Francis McDonough, Jr	Jamaica Plain
Ronald Arthur Nelson	Bernardston
William Nelson Newell	Maysville, Kentucky
Marion Watkins Newhall	Peabody
Edward Francis Norberg, Jr.	Arlington
Edward Maurice Olson	Belchertown
James Patrick Powers	Greenwood
John Albert Prouty	Whitman
Malcolm Riddle	Cambridge
Robert Leonard Rosenfield	Dorchester
Richard Newton Ruggles	Hingham
Winthrop Whitney Sanderson	Greenfield
Robert Vryling Shattuck	Pepperell
Herbert Carlson Simmons	Wollaston
Elmer Clark Smith	Waltham
Harrison Edward Smith, Jr.	Lexington
Robert Little Smith	Newburyport
Manton Presby Spear	Wakefield
David Nutting Stiles	Monson
Benjamin Swatson	Amherst
Fred Leander Taylor, Jr.	Ashby
Roger Francis Taylor	North Amherst
George Willard Trowbridge, Jr	West Springfield
Frederick Chandler Tucker	Marlboro

Oliver Holcomb Tuller	West Simsbury, Conn.
Walter Charles Wanczyk	Hadley
Arthur Lewis Whitcomb, Jr.	Dodge
Marshall Norman Winkler	Wakefield
Frank Joseph Wojtkielewicz	South Deerfield
Wilbur Parmelee Young	Wallingford, Conn.

AS OF THE CLASS OF 1935

John Vincent Newman	Roxbury

AS OF THE CLASS OF 1936

Sherwood Arlington Moore	Leeds
Vivian Lewis Payson	North Dartmouth
Clinton Ferdinand Savery	Marion

CLASS OF 1938

Allen, William Stowell	North Dartmouth	7 East Pleasant Street
Antes, Bertha Bement	Conway	Conway
Ashline, Francis Arthur	Fitchburg	Baker Lane, c/o Mrs. Webb
Atkins, William Chandler	South Amherst	South Amherst
Atwood, Howland Fay	Hartland, Vt.	17 Kellogg Avenue
Badger, Knight Abbott, Jr.	Norwood	2 Allen Street
Baum, Philip Albert	Holyoke	4 McClure Street
Beach, Arlene	Stratford, Conn.	Birch Lawn
Bearce, Lawrence Albert	Carlisle	10 McClellan Street
Bein, Beverly Sturgeon	South Hadley	South Hadley
Benchley, Edwin Allen	Brookline	7 Nutting Avenue
Bigwood, Virginia Isabella	Dorchester	8 Allen Street
Boettcher, William Smith	South Hadley	75 Pleasant Street, A. T. G.
Bookless, Sanford	Pittsfield	46 Pleasant Street
Bothfeld, Charles Henry	Sherborn	Baker Lane, c/o Mrs. Dillingham
Brennan, Clyde Towns	South Sudbury	17 Kellogg Avenue
Brown, Eben Barnard	North Attleboro	4 Sunset Court
Brown, Walter Herbert	North Dartmouth	7 East Pleasant Street
Bryant, Meredith Foxwell	Medfield	11 Phillips Street
Bume, Rudolph Louis	Newfields, N. H.	6 Nutting Avenue
Callahan, Paul Frederick	Revere	101 Pleasant Street
Clayton, Richard Reiford	Saugus	3 McClellan Street
Clough, Rachel Louise	Palmer	Birch Lawn
Clute, Howard LeRoy	Schenectady, N. Y.	97 Pleasant Street
Coffin, Robert Frederick	New Rochelle, N. Y.	Harris Street, North Amherst
Colby, Philip Newton	Wollaston	52 Lincoln Avenue
Collins, William George	West Medford	Baker Lane, c/o Mrs. Dillingham
Collis, Charles Henry	East Longmeadow	73 Pleasant Street, Kolony Klub
Costa, John Arthur	Newton	Box 5, Stockbridge Hall
Cox, Charlotte Leavitt	Holyoke	8 Allen Street
Davison, Howard Paul	Wallingford, Vt.	12 Kellogg Avenue
Deary, James Newman	Webster	4 Sunset Court
DeBonis, Silvio Peter	Fitchburg	101 Pleasant Street
DeSpencer, John	Lawrence	101 Pleasant Street
Doty, Vernon Gilbert	West Springfield	75 Pleasant Street, A. T. G.
Douglas, George Campbell	Roslindale	4 Allen Street
Elmer, Philip Warren	Melrose	52 Lincoln Avenue
Emery, Richard Holden	Westboro	4 Nutting Avenue
Erickson, Arnold Gustav	Quincy	2 Allen Street
Estabrooks, Norman Wilcox	Norton	M. S. C. Farm House
Fischer, Arnold Morton	Vineyard Haven	75 Pleasant Street, A. T. G.
Foster, Walter Gowdy	Broad Brook, Conn.	3 Allen Street
Fournier, Ernest Charles	Webster	4 Sunset Court
Frye, Roy Leonard	Leominster	4 Chestnut Street
Gibson, James Parker	Watertown	73 Pleasant Street, Kolony Klub
Golash, Walter Francis	Haydenville	Haydenville
Goodale, Earl Stewart	Methuen	10 McClellan Street
Griffin, Henry Thompson	Bloomfield, Conn.	75 Pleasant Street, A. T. G.
Haczela, Edward Howard	Savoy	1 Cottage Street
Hammond, Lowell Knight	Hopedale	75 Pleasant Street, A. T. G.
Hartley, George Sylvester	Westfield	3 McClellan Street
Hastings, Percival Vining	Agawam	6 Nutting Avenue
Heitmann, Rolf Fedor Werner	Bedford Village, N. Y.	30 Sunset Avenue
Helander, Edwin Eino	Maynard	7 East Pleasant Street
Hobbs, Walter Matthew	Hull	5 Paige Street
Jenkins, James Joseph	Clinton Corners, N. Y.	30 Sunset Avenue
Jenney, Robert	Brockton	7 Nutting Avenue
Jessel, John	Methuen	116 Pleasant Street
Johnson, Chester Martin	Belmont	2 Allen Street
Kennedy, John Edward	Feeding Hills	3 McClellan Street
King, William Wright	Brookline	31 Fearing Street
Knightly, Henry Francis	Amherst	2 Clifton Avenue
Kochakian, Vaughn	Haverhill	6 Nutting Avenue
Ladd, Charles Weber	Wilbraham	8 Beston Street
Lawrence, John Wesley	Portsmouth, R. I.	73 Pleasant Street, Kolony Klub
Lawton, Norman Fairbanks	Foxboro	72 Lincoln Avenue

Lehtola, Paul Sylvester	South Weymouth	4 Tillson Court
Litwack, Hyman	Malden	56 Pleasant Street
Luther, Donald Robert	Dudley	8 Beston Street
Maki, Arthur	Ashburnham	Box 5, Stockbridge Hall
Marsh, Maynard Frederick	Gorham, Maine	4 McClure Street
Martinsen, Edward Martin	East Douglas	52 Lincoln Avenue
Martula, Joseph Charles	Hadley	Hadley
Meader, Freeman Daniel	Westport	18 Cottage Street
Melnik, Edward Roman	South Deerfield	South Deerfield
McHardy, Robert	LeRoy, N. Y.	4 Allen Street
Nason, Donald Eldwin	Norton	15 Cottage Street
Nehring, William Hans	Leeds	Leeds
Neilson, Margaret	Northampton	Northampton
Nelson, Robert Elmer	Framingham	3 McClellan Street
Nielsen, Ivar Arne	Jamaica Plain	3 McClellan Street
North, Richard Belden	Lenox	7 East Pleasant Street
Oehler, Harold	Holyoke	5 Paige Street
Oinonen, John Esa	Fitchburg	75 Pleasant Street, A. T. G.
Parker, Stanley Fulton	Braintree	16 Hallock Street
Parker, Wallace Richard	West Boylston	8 Kellogg Avenue
Peckham, Samuel Hall	North Attleboro	15 Cottage Street
Peirce, Estelle Nancy	North Dartmouth	30 North Prospect Street
Phillips, George Harold, Jr.	Natick, R. I.	3 McClellan Street
Provenzani, Eugene Micheal	Fitchburg	73 Pleasant Street, Kolony Klub
Reilly, Norman Joseph	Weymouth	75 Pleasant Street, A. T. G.
Rice, John Edward, Jr.	Marlboro	42 Cottage Street
Richardson, Oliver Melvin	Dracut	75 Pleasant Street, A. T. G.
Riedl, Robert James	Leicester	75 Pleasant Street, A. T. G.
Ruggles, Louis Andrew	Hardwick	73 Pleasant Street, Kolony Klub
Schwaab, Louis Charles	Auburndale	73 Pleasant Street, Kolony Klub
Searle, Bertha Louise	Northampton	Northampton
Seelig, Walter Jerome II	Brooklyn, N. Y.	Mt. Pleasant Inn
Shuster, Henry Lloyd	Waban	McClure Street, c/o Mrs. Britt
Simoni, Albert Edmund	Norwood	72 Lincoln Avenue
Simonich, Francis Joseph	Chicopee	Chicopee
Sloet, John Jacob	Newton Center	73 Pleasant Street, Kolony Klub
Smith, Rupert Martin	Greenfield	63 Main Street
Spalding, Joseph Pierce	Woodstock, Conn.	111 Butterfield Terrace
Stone, Frank Manly	Boston	Q. T. V. Fraternity
Stone, Ralph Waldo	Sudbury	31 Fearing Street
Surgen, Raymond Charles	Hadley	Hadley
Taylor, Richard Mather	Feeding Hills	4 Allen Street
Treadwell, Edwin Hubbard	Lynn	75 Pleasant Street, A. T. G.
Tripp, Arthur Vernal	Westport	4 Sunset Court
Tripp, Howard Sidney	South Westport	4 Sunset Court
Tryon, Ralph Goodrich	So. Glastonbury, Conn.	24 Beston Street
Vellali, Victor Joseph	Needham	24 Beston Street
Vincent, Frank Welch	Boston	5 Paige Street
Watson, Marion Patricia	South Hadley Falls	South Hadley Falls
Wells, Edmund Dwight, Jr.	New Bedford	3 Nutting Avenue
Williams, Elliot Albert	Dudley	73 Pleasant Street, Kolony Klub
Yazwinski, Frank Stanley	Deerfield	Deerfield

Special Students

Copeland, Elizabeth A.	Hartford, Conn.	150 Elm Street, Northampton
Zak, Michael John	Sunderland	Sunderland

Class of 1939

Abbott, Robert Oakly	Bristol, Conn.	11 Phillips Street
Adams, Donald Shaw	Dalton	Baker Lane, c/o Mrs. Webb
Aldrich, Roland Walter	North Springfield, Vt.	Baker Lane, c/o Mrs. Webb
Alexakos, James Philip	Dracut	13 Hallock Street
Amato, Robert Shepley	North Adams	101 Pleasant Street
Ash, Cornelius Henry	Holyoke	Holyoke
Barber, Carroll Clement	Longmeadow	16 Hallock Street
Bartlett, Theodore Frank	Salisbury	5 Sunset Avenue
Bateman, Harry Osgood, Jr.	Winchendon	4 Tillson Court
Bearse, Basil Benjamin	Hyannis	70 Lincoln Avenue
Bein, Charles Everett, Jr.	South Hadley	South Hadley
Bemis, Warren Samuel	Spencer	Baker Lane, c/o Mrs. Webb
Benben, Mary Phyllis	North Hadley	Leverett Street, North Amherst c/o Mrs. Conklin
Berry, Arthur Wilson	Fall River	Baker Lane, c/o Mrs. Webb
Berry, Robert Elmer	Springfield	Mt. Pleasant, c/o Dr. Ritchie
Bickford, Norman Everett	West Chelmsford	22 North Prospect Street
Bodwell, Oscar Palmer	Sharon	13 Hallock Street
Brewster, John Howard	Springfield	Triangle Street, c/o Mrs. Kauffman
Brock, Leon Alfred	Palmer	Palmer
Bump, Violet Louise	New London, Conn.	10 Chestnut Street
Bushnell, Horace Lewellyn	North Franklin, Conn.	10½ Kellogg Avenue

Carlson, Sumner Tirell	Milton	2 Allen Street
Cavanaugh, Clarence William, Jr.	South Hadley Falls	South Hadley Falls
Clancy, John Joseph	Dorchester	18 Cottage Street
Clark, Malcolm Sears	Ashfield	54 Pleasant Street
Conant, William Patten	Brookline	11 Phillips Street
Conklin, Albert Edward	Millerton, N. Y.	1 Cottage Street
Cook, Claron Arthur	Amherst	South East Street
Corey, Gordon Fletcher	Plymouth	18 Cottage Street
Crabtree, Oscar Doore	Willimansett	66 Lincoln Avenue
Damon, Edward Thomas	Cochituate	43½ Sunset Avenue
Davis, Mason George	Amherst	4 Hazel Avenue
Deady, Walter Bernard	Chicopee Falls	Chicopee Falls
Denison, George Richmond	Mystic, Conn.	42 Cottage Street
DeRusha, Paul Joseph	Newton Highlands	4 McClure Street
Dimock, Gordon Emerson	Oxford	101 Pleasant Street
Doherty, James Henry	Lincoln	16 Kellogg Avenue
Donovan, John Thomas	Malden	Baker Lane, c/o Mrs. Webb
Dupuis, Robert Hilaire	Lowell	22 North Prospect Street
Eadie, John, Jr.	Dracut	13 Hallock Street
Earle, Theodore Lankesbury	Montclair, N. J.	3 Nutting Avenue
Esselen, Helen	Millis	8 Allen Street
Everett, Wallace James	Hamden, Conn.	29 Lincoln Avenue
Fenton, Walter Weston	Brockton	31 Fearing Street
Ferris, George Stanley	Sharon	2 Cosby Avenue
Fitzpatrick, William Arthur	Rochdale	4 Tillson Court
Friedman, Ira Melvin	Boston	12 Hallock Street
Fuller, John Farwell	Lancaster	2 Tyler Place
Gaouette, Dudley Winthrop	Monson	Monson
Gebhardt, Perry Marshall	Boston	Baker Lane, c/o Mrs. Dillingham
Gerber, Wilfred	Dorchester	Baker Lane, c/o Mrs. Webb
Gieringer, Eugén Pierre	Cambridge	Kappa Sigma Fraternity
Gillespie, Earl Curtis, Jr.	Hollis, N. Y.	200 North Pleasant Street
Goodale, John Perrins	Wethersfield, Conn.	18 Cottage Street
Gordon, Richard David	Green's Farms, Conn.	11 Phillips Street
Graves, Richard Warren	Sunderland	Sunderland
Grout, Leon Everett	Townshend, Vt.	43½ Sunset Avenue
Guyott, Frederick Francis	Amherst	134 South Pleasant Street
Hands, Herbert Carville	Scituate	57 Pleasant Street
Harrington, Edward Neal	West Newton	2 Cosby Avenue
Henderson, Douglas Kenneth	Whitinsville	26 Dana Street
Hibbard, John Warner	Whately	11 Phillips Street
Hines, Wilfred Edward	Cohasset	15 Spring Street
Hitchcock, Stanley Haskell	Gilbertville	15 Spring Street
Hook, Carl Leonard, Jr.	Worcester	15 Cottage Street
Houle, Raymond Proctor	Newbury	23 McClellan Street
Howland, James Orvis	Windsor, Vt.	25 North Prospect Street
Hubbard, Norman	Bloomfield, Conn.	86 Pleasant Street
Hunter, Howard Knapp	Pittsfield	12 Kellogg Avenue
Irwin, David Chipman	Newtonville	25 North Prospect Street
Jakuboski, Vincent	Pittsburgh, Penna.	Baker Lane, c/o Mrs. Webb
Jennings, John Rolly	South Natick	3 McClellan Street
Jones, Robert Floyd	Amherst	74 Main Street
Joyce, Alma Josephine	Northampton	Northampton
Kandianis, Michael William	Fitchburg	1 Cottage Street
Kelleher, Jack Joseph	Brockton	4 Allen Street
Kelso, John Howe	Chester	3 McClellan Street
Kennedy, Warren Gerard	Dorchester	73 Pleasant Street, Kolony Klub
Kimball, Charles Leon	Pittsfield	10 McClellan Street
Kohn, Morris Leo	Roxbury	2 Allen Street
Kumins, Alfred Melvin	Dorchester	Baker Lane, c/o Mrs. Webb
LaBonte, George Ferdinand	Lewiston, Maine	1 Phillips Street
Lavoie, William Napoleon	Lowell	Baker Lane, c/o Mrs. Dillingham
Lindgren, Olaf Theodore	New Bedford	25 North Prospect Street
Mackie, Weikko Albert	Hubbardston	18 Cottage Street
Maloney, John Carl	Hartford, Conn.	53 Lincoln Avenue
Mandell, Charles Forbes	Rockland	13 Hallock Street
Mayberry, Richard Stewart	Orange	3 Allen Street
Minor, Howard Richard	Springfield	14 Orchard Street
Mistarka, John Premo	Northampton	Baker Lane, c/o Mrs. Webb
Mitchell, Albert	Taunton	30 Dana Street
Morey, David Frank	Northampton	Northampton
Morse, Florence Harvey	Pelham	Pelham
Morse, Stephen Kingsley	East Woodstock, Conn.	75 Pleasant Street, A. T. G.
Munson, Myron Montgomery	Amherst	101 Butterfield Terrace
MacDonell, Donald Collister	Washington Depot, Conn.	North Hadley Road, c/o Mrs. Tokarz
McDonough, James Joseph	Springfield	11 Phillips Street
McGary, Jack Donald	Natick	50 Sunset Avenue
MacLeod, Colin, Jr.	Brookline	Mt. Pleasant Inn
MacQuinn, Thomas Bernard	South Weymouth	2 Farview Way
Nelson, Charles Erold	Fall River	15 Spring Street
Newton, Edward Bartlett	Winthrop	Triangle Street, c/o Mrs. Kauffman
Norton, Alfred Elbridge	Vineyard Haven	75 Pleasant Street, A. T. G.
Ogden, William Pierce	Middlebury, Conn.	North Amherst, c/o Mrs. Pushee

Ogilvie, Arthur Lewis	Kankakee, Ill.	2 Tyler Place
Olds, Charles Bright	East Northfield	8 Spring Street
Osley, Thomas	West Hatfield	West Hatfield
Packard, Barbara Elizabeth	Brockton	Meadow Street, North Amherst
Payne, George Henry	Mineola, N. Y.	2 Tyler Place
Perednia, Casper John	Norwood	72 Lincoln Avenue
Perkins, Llewellyn Robinson	Middlebury, Vt.	9 Cosby Avenue
Phillips, William, Jr.	Beverly	Mt. Pleasant Inn
Pickard, Charles Robert	Salisbury	5 Sunset Avenue
Plotczyk, John Aloysius	South Vernon	8 Spring Street
Potter, Raymond Edward	Ludlow	9 Cosby Avenue
Potter, Robert William	North Billerica	13 Hallock Street
Reynolds, Charles Edward	Gardner	Hadley
Richardson, Elroy Moore, Jr.	Dracut	10 McClellan Street
Richardson, Robert Bragdon	Marlboro	15 Cottage Street
Russo, Charles Joseph	Lawrence	North Hadley Road, c/o Mrs. Tokarz
Schall, Peter Noel	Darien, Conn.	17 Kellogg Avenue
Shaw, Russell Stoddard	Simsbury, Conn.	12 East Pleasant Street
Shine, Daniel Joseph	Cambridge	8 Beston Street
Smith, Fletcher, Jr.	Easthampton	25 North Prospect Street
Smith, Richard Allison	Greenwood	Baker Lane, c/o Mrs. Webb
Soderholm, Bruce Cameron	Brockton	16 Kellogg Avenue
Sparks, Richard Marshall	Wakefield	75 Pleasant Street, A. T. G.
Spear, Edgar Winfred	Everett	15 Cottage Street
Stedman, Arthur Phillips	Amherst	South East Street
Stillman, Clarence Edward	North Granby, Conn.	12 East Pleasant Street
Strong, Elisabeth	Cleveland Heights, Ohio	73 East Pleasant Street
Sullivan, Vincent Thomas	Chicopee	Chicopee
Tait, David Hunter	Palmer	4 Allen Street
Taylor, Raymond Ernest	Worcester	23 McClellan Street
Teevan, James Edward	Boston	25 North Prospect Street
Thompson, Alfred Nahumn	Framingham	29 North Prospect Street
Thornton, Guy Burgess	North Grosvenordale, Ct.	97 Pleasant Street
Treadway, David Fowle	Williamstown	57 Lincoln Avenue
Treat, Leonard Kimball	Upper Montclair, N. J.	35 North Prospect Street
Verrill, Ralph Foster	Concord	7 Chestnut Street
Walker, John Robert	Oxford	7 Chestnut Street
Walsh, David Robert	Jamaica Plain	Baker Lane, c/o Mrs. Webb
Warner, Andrew Cleveland	Sunderland	4 McClure Street
Watts, Theodore Francis	Hubbardston	Strong Street, c/o Mrs. Keady
Wentworth, Benning Lewis, Jr.	Melrose	15 Cottage Street
Weymer, Russell Waldron	Woodbury, Conn.	North Hadley Road, c/o Mrs. Tokarz
Wheeler, Elliot Marshall	Melrose Highlands	42 Lincoln Avenue
Whelan, William Francis	Boston	14 McClellan Street
Whitman, Francis Chase	Cambridge	Lord Jeffery
Wilkinson, George Norman	Williamsport, Penna.	Baker Lane, c/o Mrs. Webb
Williams, Donald Kingsley	Westhampton	2 Tyler Place
Wilson, Edward Van Alstine	Clermont, N. Y.	Farview Way, c/o Mrs. Allen
Winn, Frank Ashley	West Deerfield	West Deerfield
Winter, Howard William	Westminster	86 Pleasant Street
Wood, William Pfeiffer	Framingham	6 Dana Street
Woodfall, Lawrence Curtis, Jr.	Belmont	42 Cottage Street
Woodhead, Frank Allen, Jr.	Chelmsford	11 Phillips Street
Woods, Gordon Thomas	Newington, Conn.	North Pleasant Street, c/o Mrs. Montague
Wright, Fred Loring, Jr.	Brockton	Baker Lane, c/o Mrs. Webb
Wright, Warren Granville	Abington	86 Pleasant Street
Yale, George Richard	Chelsea	27 Fearing Street

SUMMER SCHOOL, 1937

Adams, Mrs. Ruth	Amherst
Ahern, David P.	Springfield
Archibald, Priscilla	Watertown
Austin, Julia Belle	Northfield
Avery, Arthur C.	Amherst
Avery, Rexford H.	Shrewsbury
Bacon, Flora	Springfield
Bacon, Fred E.	Springfield
Bacon, Mary E.	Springfield
Bacon, Thelma I.	Springfield
Baker, Elizabeth W.	Braintree
Baker, Phyllis	Williamsburg
Bartlett, Lewis W.	Hinsdale
Barton, Elizabeth S.	South Amherst
Barton, Richard W.	Amherst
Beloin, Mederic H., Jr.	Holyoke
Belsky, Frederick	Holyoke
Benson, Kenneth E.	Winchester
Bernotovicz, John W.	Brockton
Boylston, Ward N.	Brattleboro, Vt.
Brady, Lawrence D.	West Springfield
Brasil, Theresa N.	Holyoke
Bresnahan, Dorothy E.	Chicago, Ill.
Brown, Bruce G.	Amherst

Brown, Lorimer H.	Northampton
Buck, Agnes M.	Amherst
Burgun, Philip E.	Canton
Butkevitch, Sophia V.	Worcester
Cadigan, Donald	Greenfield
Campbell, Janet	Springfield
Caraway, Elbert F.	North Amherst
Chambers, Phyllis R.	North Adams
Cooley, Laura G.	Sunderland
Coughlin, Ursula	Lee
Crowley, Mary M.	Springfield
Currie, Eugene K.	Ashfield
Curtin, Daniel F.	Cheshire
Dalton, Frank H.	Greenfield
Damon, Marjorie	Haydenville
Davis, Arnold M.	North Amherst
Deady, Robert L.	Chicopee Falls
Decker, Roger H.	Westfield
Derby, Llewellyn L.	Amherst
Derosia, Edith M.	Adams
Diaz, Mary G.	Brighton
Dickens, Frederick L.	Ashland
Doran, Katherine	Amherst
Dorman, Kenneth	Gilbertville
Earls, Martin J.	Southbridge
Ellis, Helen	Greenfield
Farrell, Kenneth T.	Brookline
Fawcett, David C.	Amherst
Flahive, Mary E.	Florence
Gafney, Harry D., Jr.	Ware
Gay, Alfred F.	Bernardston
Glass, Robert B.	Arlington
Gleason, Edward K.	Amherst
Hall, Christine	Northampton
Hanifin, Agnes	Belchertown
Hanifin, Irene	Belchertown
Harris, Raymond E.	Agawam
Harvey, Edward W.	Amherst
Hawley, Edna B.	Amherst
Hawley, Helen M.	Holyoke
Hawley, Robert D.	Amherst
Hirsh, Reynold L., Jr.	New York City
Hoag, Katharine	Amherst
Hovey, Elwood B.	Longmeadow
Howard, Harlan A.	Amherst
Hubbard, Catherine N.	Sunderland
Jackson, Belding F.	Belchertown
Jefferson, Irene	West Springfield
Julian, Carol	Amherst
Julian, C. Nelson	Amherst
Kane, Mary C.	Holyoke
Keefe, Katherine G.	Hadley
Kelly, Leslie M.	Amherst
Kenison, Ralph M.	Walpole
Kennedy, Margaret W.	Westfield
King, Katharine H.	Pittsfield
Kingsbury, Aileen L.	Braintree
Koehler, Dorothy	Greenfield
Kumin, Pauline E.	Athol
Landers, Thomas B.	Thorndike
Leclair, Leo	Amherst
Lepine, Arthur Jr.	Holyoke
Levreault, Lorette A.	South Hadley Falls
Lynch, Margaret	Holyoke
Lyons, Mary E.	Holyoke
Marriott, Rev. Roland C.	Ashfield
Matuszko, Victoria K.	Amherst
Moore, Edwin L.	Amherst
Morey, Clifton	Belmont
Morgan, Enid M.	Turners Falls
Mountain, David C.	Pittsfield
Mulhall, William P.	Ashland
McLaughlin, Charles L.	Amherst
MacPhail, William A.	North Plymouth
McQuestion, Dorothy E.	Hadley
NeJame, Mitchell F.	North Adams
Newcomb, Roxie A.	Deerfield
O'Keefe, Eileen F.	Fitchburg
O'Leary, Helen F.	Holyoke
Osgood, Chester W.	Greenfield
Outhouse, Elisabeth L.	Shelburne Falls
Parkinson, Leonard	Amherst
Parshley, Elsa M.	Northampton
Perry, Marion L.	North Adams
Pierce, Dorothy	Holden
Powers, Hazel	Hatfield
Purnell. Frederick	Amherst
Reed, Philip C.	Hadley

Remshack, Lillian M.	Easthampton
Rich, James L.	Amherst
Rogosa, Mary	Lynn
Rood, Janice	Northampton
Sartwell, Robert T.	Northampton
Seager, Beatrice F.	Boston
Serex, John P.	Amherst
Shaw, Philip H.	Wilbraham
Sheehan, Anna F.	Springfield
Sheehan, Eleanor	Holyoke
Shipman, Lee	Worcester
Smith, Olive	Springfield
Spencer, Frank H.	Northampton
Staszko, Peter G.	Feeding Hills
Stiles, Vernon D.	Hadley
Sweinberger, Tabea	Holyoke
Sydla, Stanley A.	Ware
Taylor, Priscilla	Jamaica Plain
Turner, Max E.	Augusta, Maine
Vendt, Eric Clifton	Worcester
Villaume, Osgood L.	Malden
Warner, Joseph, Jr.	Amherst
Whelan, Doris K.	Springfield
Whitcomb, Marciene R.	South Hadley Falls
Whitcomb, Ruth N.	Amherst
Wileikis, Walter A.	North Amherst
Wilkinson, Richard A.	Fitchburg
Williams, Paul R.	Amherst
Youngren, Clare	Orange

WINTER SCHOOL, 1937

Abbott, G. Richard	Andover
Aho, Herman, Jr.	Townsend
Andrus, Roland B.	Worcester
Bagg, Vernon S.	South Hadley
Barnes, Richard P.	Bedford
Barrett, Walter S.	Nantucket
Barton, Raymond	Worcester
Beaubien, Nelson F.	Montague
Berghorn, Alfred J.	Elsmere, N. Y.
Bernier, Joseph	Medford
Bertrand, Leon L.	Springfield
Blair, Earle F.	Amherst
Blake, S. Prestley	Springfield
Boutsioukos, Vlasis	Richmond Hill, Queens, L. I., N. Y.
Brunelle, Paul H.	Lowell
Bucci, John	Natick, R. I.
Burnett, Harry	Southborough
Caldwell, Clarence T.	Greenfield
Callahan, Edward V.	Dracut
Carson, Edward E.	Northampton
Casey, Edward J.	Rye, N. Y.
Chodkowsky, Henry	Fall River
Collette, Arthur H.	Fisherville
Connors, John J.	North Andover
Cornish, Geoffrey	West Vancouver, B. C., Canada
Cote, Emile	Sterling
Cronin, Robert J.	Glens Falls, N. Y.
Cunningham, William F.	East Providence, R. I.
Cutter, Arthur H.	Winchester
Damon, Alan W.	Haydenville
DeFreest, Milton	Rensselaer, N. Y.
Doherty, Thomas J.	Greenfield
Dowling, Edward G., Jr.	Northampton
Dunlap, Erle S.	Arlington
Duval, Henry J.	Schenectady, N. Y.
Edgecomb, Mark L.	Manchester
Fearon, Lane	Manchester, N. H.
Ferguson, Alex	Claremont, N. H.
Garlick, Virginia	East Longmeadow
Gilson, Colby W.	Taunton
Goodreau, Joseph P.	Palmer
Grassie, Stephen J.	Cohasset
Gushee, Roger H.	Ludlow
Hair, Elmer E.	Worcester
Hallock, James D.	Willimantic, Conn.
Hamilton, Harry	Middleboro
Hammond, Nelson A.	Medford
Hart, James W.	Holyoke
Hart, Wallace A.	Westfield
Harthan, Harold C.	West Boylston
Holbrook, George	Omaha, Nebr.
Holloway, Frank R.	Avon, Conn.
Hynes, Joseph H.	Methuen
Jackson, Elizabeth E.	Westboro
Johnson, Edward S.	East Boston

Jones, John A.	Peabody
Kalashian, Harold G.	Worcester
Kasprzynski, Leo	Holyoke
Keating, Joseph	Willimansett
Kehoe, Norman A.	Natick
Lane, George J.	Williamstown
Langdon, Harold M.	Lowell
Laurie, George R.	New Haven, Conn.
Lawton, Robert H.	Springfield
Leighton, Henry K.	Boston
Lesperence, Alfred	Wilmette, Ill.
Lockwood, Aaron L.	West Newton
Longley, Melvin P.	Shirley Center
Lord, William, Jr.	Sidney, N. Y.
Lyle, Mrs. Elizabeth G.	Greenfield
Mann, Willard S.	Westford
Marshall, Frederick W.	Wellesley
Matuszko, Edward J.	Amherst
Merrifield, Ralph A.	Athol
Mills, C. Robert	North Haven, Conn.
Mitchell, Henry C.	Salem
Mitchell, Robert L.	Rexford, N. Y.
Mitchell, William G.	Dewitt, N. Y.
Moody, Norton W.	Williamstown
Moore, George P.	Greenfield
Moore, Sherwood	Leeds
Morrison, Sidney L.	Sharon
Murray, James J.	Danvers
McAvoy, James F.	Woburn
McCarron, Arthur J.	Boston
McDonald, John A.	Salem
McNamara, Thomas J.	Millbrook, N. Y.
Nelson, Paul R.	Holyoke
Newlove, Thomas P.	Syracuse, N. Y.
Newton, George O.	Pittsfield
O'Connor, Patrick J.	Palmer
Padden, Edward J.	Clinton
Payson, V. Lewis	North Dartmouth
Pease, Wellington L.	Pottersville
Peeke, Leslie A.	Newburyport
Ralston, Frederick R.	Hyde Park
Rennicks, Thomas J.	Worcester
Richard, Henry J.	Ware
Ringland, Harold E.	Stoneham
Rix, George H.	Westfield
Rogers, Harry	Fairhaven
Russell, Lloyd A.	New Haven, Conn.
St. Armand, William	Waltham
St. John, Amos	Amesbury
St. John, George	East Lee
Sanborn, Lowell E.	Haverhill
Sanderson, Walter W.	Greenfield
Scharrett, John L.	East Taunton
Shannahan, John T.	Chicopee Falls
Slavin, William	Winchendon
Small, Myron R.	Berlin
Smith, Arthur F.	Tyngsboro
Smith, Arthur K.	Gloucester
Sowerby, Clifton E.	Marlborough
Sperry, Lawrence R.	Wakefield
Stevens, Murray A.	North Abington
Stewart, Andrew W.	Quincy
Stone, Walter M.	Somerville
Taylor, Gordon	Concord
Thatcher, Eleanor C.	Framingham
Thomas, Emery T.	Rahway, N. J.
Tick, Frank J.	Southbridge
True, John E.	Somerville
Walker, Judson	Marlboro, N. H.
Wapenski, Samuel	Taunton
Weatherby, Robert	Brockton
White, Loring R.	Bridgewater
Williams, Robert M.	Wauconda, Ill.
Wilson, Kenneth A.	Westford
Wisniewski, Martin	Newport, R. I.
Wronski, Chester L	Holyoke
Yesberger, Earl F.	North Olmsted, Ohio
Yott, Joseph	Bennington, Vt.
Zacek, Joseph F.	Westfield

Summary of Short Course Enrollment

	Men	Women	Total
Stockbridge School of Agriculture:			
Second year	108	10	118
First year	154	7	161
Winter School, 1937	130	4	134
Summer School, 1937	73	68	141
Specials	1	1	2
Totals	466	90	556

Grand Summary of Student Enrollment

	Men	Women	Total
Graduate School	232	66	298
Undergraduate School	785	326	1,111
Stockbridge School	262	17	279
Summer School	73	68	141
Winter School	130	4	134
Specials	3	8	11
Totals	1,485	489	1,974

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Agronomy	33
Animal Husbandry	35
Bacteriology	53
Beekeeping	62
Botany	55
Chemistry	58
Dairy Industry	37
Drawing	48
Economics	70
Education	73
English	80
Entomology	60
Floriculture	44
Forestry	45
French	82
Geology	63
German	84
History	76
Home Economics	41
Horticultural Manufactures	46
Horticulture	50
Landscape Architecture	48
Languages and Literature	79
Mathematics and Civil Engineering	65
Military Science	88
Music	85
Olericulture	50
Philosophy	76
Physical Education	85
Physics	68
Physiology	54
Plant Breeding	52
Pomology	51
Poultry Husbandry	40
Psychology	74
Sociology	78
Spanish	83
Veterinary Science	69
Zoölogy	63
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Gifts and Bequests

For the information of those who may wish to make a gift or a bequest to this College, the following suggestion is made as to a suitable form which may be used.

There are a number of worth-while activities of the College which are handicapped by lack of funds and for which small endowments would make possible a greater measure of service to our students and to the Commonwealth. The religious work on the Campus is an example. This is now carried on in a very limited way by current private contributions. Further information concerning this and other activities in similar need will be gladly furnished by the President.

Suggested Form

"I give and bequeath to the Trustees of the Massachusetts State College, at Amherst, Massachusetts, the sum of.....dollars."

(1) (Unrestricted)

"to be used for the benefit of Massachusetts State College in such manner as the Trustees thereof may direct."

or (2) (Permanent Fund: income unrestricted)

"To constitute an endowment fund to be known as the..... Fund, such fund to be kept invested by the Trustees of Massachusetts State College and the annual income thereof used for the benefit of the College in such manner as the Trustees thereof may direct."

or (3) (Specific Purposes)

"to be used for the following purposes,"

(Here specify in detail the purposes.)

Bulletin
MASSACHUSETTS STATE COLLEGE

REPORT NUMBER

1936-1937

Bulletin
MASSACHUSETTS STATE COLLEGE

The report of the President and other officers of administration, for the year ending November 30, 1937, is a part of the seventy-fifth annual report of the Massachusetts State College and as such is Part 1 of public document 31. (Section 8, Chapter 75, of the General Laws of Massachusetts).

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3500. 3-'38. No. 3241.

THE TRUSTEES

Organization of 1937

Members of the Board

	Term Expires
Mrs. Lena Edge Wilson of Pittsfield	1938
Harold L. Frost of Arlington	1938
David H. Buttrick of Arlington	1939
David J. Malcolm of Charlemont	1939
John F. Gannon of Pittsfield	1940
Davis R. Dewey of Cambridge	1940
Joseph W. Bartlett of Boston	1941
Philip F. Whitmore of Sunderland	1941
John Chandler of Sterling Junction	1942
Frederick D. Griggs of Springfield	1942
Nathaniel I. Bowditch of Framingham	1943
William C. Monahan of Framingham	1943
James T. Cassidy of Boston	1944
Mrs. Elizabeth L. McNamara of Cambridge	1944

Members Ex Officio

His Excellency Charles F. Hurley, *Governor of the Commonwealth.*
Hugh P. Baker, *President of the College.*
James G. Reardon, *Commissioner of Education.*
William Casey, *Commissioner of Agriculture.*

Officers of the Board of Trustees

His Excellency Charles F. Hurley of Cambridge, *President.*
Nathaniel I. Bowditch of Framingham, *Vice-President.*
Robert D. Hawley of Amherst, *Secretary.*
Fred C. Kenney of Amherst, *Treasurer.*

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Massachusetts State College

REPORT OF PRESIDENT TO THE BOARD OF TRUSTEES FOR YEAR ENDING NOVEMBER 30, 1937

Several times in the Annual Reports which I have made to your body during the past five years, I have raised the question as to the kind of a college which we have at Amherst, and have discussed aims and objectives of the College. The increasing discussion of the place of state-supported colleges and universities in the educational program of this and other states makes it seem desirable again to define the College and to re-emphasize somewhat briefly its aims, objectives and accomplishments.

Though more than twenty-five of my working years since leaving college have been given to service in state-supported colleges, and though I believe wholeheartedly in state support for colleges and universities, one of the first questions which I asked myself upon taking up the work at the College in 1933 was: What kind of a college is Massachusetts State College, and what are its objectives and worth while accomplishments? This question was asked in a questionnaire which was sent to every member of the staff of the College in the late spring of 1933. Reference has been made to this questionnaire and the values accruing through the years from the material it produced.

It is hardly enough to say that the College is a Land-Grant College, meaning thereby that it is based upon the Federal Morrill Act of 1862 and the Act of the Great and General Court of the Commonwealth of 1863 which accepted the provisions of the Morrill Act. While this Federal Act and the State Act which followed it might be indicated as the charters under which the College is working it is only reasonable to assume that the passing of seventy-five years has caused a re-defining of objectives and a series of interpretations by the Governing Board of the College that makes the College of today quite a different institution from that of 1870 or 1880, or even later periods. It is common knowledge that all of the institutions of higher learning, beginning with the first college in the country founded at Cambridge three hundred years ago, have been undergoing changes which we are ready to agree have been not only necessary but desirable. The group of fine old privately endowed institutions which have served the people of New England so well through the years and which have made our section of the country the center of higher education have been undergoing constant change. When it is understood that a student may enter one of these older classical institutions here in New England and, in fact, most of them, without offering Latin for entrance or without taking Latin or Greek through college, and can be graduated with the A.B. degree, it is not surprising to find that the great group of scientific technical institutions, known as the Land-Grant Colleges, has been going through similar change with the result that many of these Land-Grant Colleges have not only become universities but they are giving degrees similar to those given by the host of privately endowed institutions.

There has been fear expressed by a few of the friends of the College that the changes which have taken place in the College have caused it to lose its original character and objectives. In other words, there are those who feel that a mistake is being made if the College loses any of the agricultural character which it may have had through the years when it was known as the Massachusetts Agricultural College. The College has changed through the years and must continue to change if it is to keep abreast of the needs of people whom it is serving. But, it has not departed in any way from the character and program outlined for it, either in the Morrill Act of 1862 or the State Enabling Act of 1863; in fact, in its present make-up and program it is carrying out much more effectively than ever before the opportunities and the obligations laid down in its Federal and State Charters. There are those who would like, perhaps, to change the meaning of the charters and have the College made essentially an agricultural school. It never was essentially an agricultural school and never can be. The very fact that a considerable majority of its graduates of the past fifty years have gone into business, education

d professions other than education, is in a sense better evidence of the character the institution than its name, or the external evidences of certain of its activities. saying this, it is my desire to emphasize, as I have emphasized in previous ports, that the College is the agricultural college of the Commonwealth and will main the agricultural college as long as it is a Land-Grant institution. It has en my desire and my determination during the past five years to strengthen struction in the field of Agriculture and Horticulture at the College and to engthen the service of the College to the agricultural interests of the State. e College is teaching more Agriculture and teaching it more effectively today an in any previous period in the life of the College and the result has been an creased number of students taking Agriculture. The service which it is rendering the Commonwealth through the Agricultural Experiment Station and the tension Service is a broader and more effective service than ever before. In ying this, it is my desire to emphasize again that the College is essentially a ientific technical institution, that its work has always covered a broader field an the narrow field of Applied Agriculture, and that changes must gradually me through the years that will make the College an increasingly effective in- ument of the State for the sound preparation of young men and women for fective citizenship and, particularly, for effective living, wherever their citizenship ay be.

It has been my aim, and you have supported me in this, to increase the cultural rroundings of the student body of the College. You have agreed, and I am nvinced that you will continue to agree, that the principal objective of the llege is so to carry on instruction that as young men and women leave the llege they may go out as well-educated young people.

The charter of the College does not state that the College shall serve Agriculture d the agricultural classes of the State only; in fact, the charters state specifically at the College shall serve the industrial classes and, in fact, the charter is so rded that the College must serve to the extent of its financial ability all of the ople of the Commonwealth. A very large majority of the other Land-Grant lleges of the country have recognized the fact that engineering instruction is important a phase of service as agricultural instruction; in fact, that instruction the arts and sciences is a definite obligation under the Morrill Act of 1862.

It is not out of place to emphasize again the character of the College, in part cause question has been raised as to what kind of a college we are and, in part, to ake it perfectly clear throughout the Commonwealth that the College was estab- shed in 1863 to make possible a college education, for all classes of our citizenry, rticularly for those who could not afford to take advantage of educational pportunities offered in the privately endowed institutions. This last idea was nphasized and re-emphasized by Senator Morrill and others who took part in e discussion in Congress at the time of the passage of the Morrill Act. It is my rong belief that Massachusetts State College has been meeting the requirements its charter and, with changes which have taken place at the College through e past ten years, that it is today meeting those requirements more effectively an ever before.

Objectives

In the brief discussion of the character of the College and of the emphasis which as been placed upon the breadth of the charters under which the College is operat- g, there has been some reference to objectives which the College should keep efore it in these years of rapid change in the economic, social and political life of e State and Nation. During the first year of my work at the College, I empha- zed in numerous addresses upon the work of the College three definite objectives wards which we should try to carry the College in its activities and developments. may not be out of place to enumerate these three objectives again at this time nd perhaps to comment on progress which has been made in the accomplishment f these objectives. Briefly, these three objectives are:

First: The improvement of teaching at the College; in other words, an effort to ncrease the number of good teachers, both by stimulating good teaching on the art of the entire teaching staff and by exercising great care in the selection of

new teachers. If the work of the College is designed to prepare its graduates go out as well-educated men and women, then there must be continuous effort inspire the entire teaching staff to do better teaching at all times and under conditions. During the past four years strong Faculty Committees have mad number of studies of various phases of the curriculum, of teaching principles, e and these reports have been placed in the hands of this body and have been stud and discussed at the College.

The second objective, which it has seemed to me essential to keep before staff of the College, has been the offering of better facilities for research wo You are very familiar with the fact that the College has been carrying on resea work almost from the time of its establishment, through the activities of Agricultural Experiment Station as it has functioned both here on the Cam and at sub-stations at Waltham and Wareham. After twenty-five years in coll work it is my firm conviction that every college teacher should be given so facilities for research work in the field in which he is teaching. It has been aim here to inspire our teachers to explore their fields of activity with the i that the teacher who is carrying on research will be a more inspiring teach Furthermore, the carrying on of research work by members of the teaching st offers the opportunity to the teaching staff to publish results of research and there improve their standing and reputation as teachers. There is still much to be d at the College in offering satisfactory opportunities for research to members the teaching staff and until the teaching load of many of the teachers is somewh reduced, satisfactory opportunities cannot be offered.

That there is a very considerable amount of satisfactory research work be carried on at the College and that this research work is of high standard, howe is evidenced by the action of the National Society of Sigma Xi—the natio honorary scientific fraternity—in granting a Chapter of Sigma Xi for the Colle I referred, two years ago, to the aggressive work of the Sigma Xi Club of College in the preparation of a full report on research at the College to accompa its application for a Chapter of Sigma Xi.

The third objective, which it seems to me the College must keep before it, the creation of more wholesome living conditions for its student body. With completion and occupancy of the new men's dormitory, Thatcher Hall, livi conditions for freshman men have been very considerably improved. The aggr sive work of a Faculty Committee on Student Housing and Sanitation—and report of this Committee was sent to members of this body recently—has been great value in furthering the idea of more wholesome living conditions for all our students. It is perfectly evident, however, to all who know the work of College well, that too many of our students, both men and women, are living un somewhat unsatisfactory conditions in the town. This is not suggesting that rooming houses for students in the town of Amherst are not as good as those other college towns. It is my opinion that on the whole they are better than the average college town. However, the necessity for economy often drives s dents to crowd into rooming houses in an unsatisfactory way and there is, therefo much for us to do before our student body is generally housed in a satisfact way. There is urgent need for another dormitory for men and another dormit for women.

On the whole, the housing situation, as far as fraternity and sorority houses concerned, is fairly satisfactory. The sorority houses are given special attenti both as to supervision and as to sanitation. House Mothers selected for sorority houses must meet with the approval of the Administration and in th houses in which the girls are boarding themselves, sanitation is carefully guard

Changes In Staff

During the year, five members of the professional staff of the College resign They were: Mrs. Adeline E. Hicks, Physical Director for Women; James Hillier, Instructor in Animal Husbandry; Dr. Florence S. Jenney, Assistant P fessor of Hygiene; Kenneth C. MacArthur, Assistant Professor of Rural Sociolo and Rudolph O. Monosmith, Instructor in Horticulture.

On the occasion of Mrs. Hicks' retirement last June, the Trustees adopte

solution praising her great service to the College. I quote, in part: "Last June Irs. Hicks completed twenty years of significant service to Physical Education general and to women students of the State College in particular. . . . Continuly faced with inadequate facilities, she gradually developed her constructive rogram under the most trying conditions until by 1931 she had developed a hysical Education program comparable to the program in the women's colleges. ver interested in the health and happiness of each individual girl, this manyceted director of Physical Education has for five college generations improved e standards of play and game, the posture, charm and poise of State College omen."

The Sixty Seventh Commencement

The exercises of Commencement were held in the Physical Education Building age and were attended by a record throng of nearly 3,000 persons. The principal ldress was delivered by the Reverend Edmund A. Walsh, Vice-President, Georgewn University. The Honorable James G. Reardon, Commissioner of Education, resented diplomas to 284 candidates: 229 recipients of the degree of Bachelor Science and 2 recipients of the degree of Bachelor of Vocational Agriculture. he degree of Bachelor of Landscape Architecture was conferred upon 3 candidates, e degree Master of Science upon 48 candidates and the degree Doctor of Philosophy pon 2 candidates.

An interesting highlight of the graduation program was the presence of Jabez isher '71, at the time the only living graduate of the first class to be graduated om this College, who handed the diploma to his grandson, Austin Fisher, Jr., the present graduating class.

Seventy-fifth Birthday

Massachusetts State College ranks well among the Land-Grant Colleges of the untry. Those men and women of the staff who have built their lives into the llege through the years deserve great credit for accomplishing a College of gh standing. It is my opinion that the College of today is what the founders the College hoped it would become. It is fitting, therefore, that in this year, hich is the seventy-fifth year since the establishment of the College, it should lebrate its seventy-fifth birthday. An active Faculty Committee was appointed the spring of 1937 and this Committee has been supplemented by the appointent of assisting committees of the Alumni and the student body to plan and rry out a fitting celebration of our seventy-fifth birthday. The Finance Comittee of the Board has been asked to set aside a certain moderate sum to make ssible a program which will be not only a satisfactory celebration of our seventyth birthday, but will make possible a better understanding of the College, its jectives and its accomplishments, by the entire Commonwealth. The great dy of Alumni in the Commonwealth and elsewhere are showing great interest the possibility of a fitting celebration of our seventy-fifth anniversary and the udent body, always a loyal group, will have active part.

A Changing College

The world, as a whole, and certainly neither this country nor this Commonealth can be excepted, is witnessing fundamental changes in economic, social id political ideas and applications. One is tempted, with the passing of the ars, to look about to see what is stable and what can be considered of sufficient rmanency to justify one's beliefs in government, forms of society, political rms, education objectives, etc. It may be considered paradoxical to say that ie only evidence of permanency of any human activity is change. We are very ire that change is taking place. We are not so sure as to whether the character the change is entirely satisfactory or what the change may lead us to. Yet, ith all of the change, there is very much that warrants our having increased ith in democracy and in our economic, social and educational programs and tivities.

With this evidence of change all about us there is increasing evidence of change educational ideals and forms; in fact, it would be unfortunate if, in view of the

changes taking place in other phases of human activity, there was not change educational ideals and practices. The privately endowed colleges and universit the publicly supported colleges, the state departments of education, are unc going what are almost fundamental changes and yet it is our faith that th changes are moving these institutions of learning and of leadership in the ri direction. While we turn back often to the charters under which we are operati nevertheless, the fact remains that the Land-Grant Colleges of today are qu different from what they were fifty years ago, and to meet changes in other hum activities and increasing needs for public and educational service, there is ev reason why these institutions should continue to change. In all of this chan it is exceedingly important that those responsible in government, in business, education, should have imagination and vision and exercise sane and wise leac ship as result of imagination and vision. It is my feeling that leaders in educat have a particularly definite challenge to exercise imagination and vision. It not my interpretation of leadership in education that it should try to depend up precedent or to resent pressures for changes to meet new needs or new opportunit

This fine old Commonwealth of Massachusetts down through the years has b fortunate in educational leadership. It has built up a splendid reputation vision and imagination in education. It seems to me, however, that the time l now come for a thorough stock-taking, at least of state-supported higher educat in the Commonwealth to the end that the educational program, insofar as it supported by the state, shall not only be effectively coordinated and applied, l shall be of a character to meet the growing interests and demands of a pub which knows more of education and educational needs than any previous gene tion. For too long a time colleges and universities have been small kingdoms u themselves and have rather resented even the suggestion that their policies a their programs for the carrying out of policies should be made a part of a lar state program. Massachusetts State College is very definitely a part of a sta wide publicly supported program of higher education in the state. It is my feeli that we should welcome and be made a part of any stock-taking that may be do or of any sincere effort for improvement which may be made. The College wo welcome a thorough study on the part of His Excellency, the Governor, or of a legislative committee, of every phase of its activities. It feels, however, that wh such a study is made that all of the other agencies for higher education should thoroughly studied to the end that there may be developed an effective st program that will bring coordination, cooperation and economy in all educatio activities.

M.S.C. as A Service Institution

It has been emphasized repeatedly through the years that this College is service institution; that approximately one-half of the net appropriation given the College by the State is used by the Extension Service and Experiment Stati for the purpose of serving the citizenry of the State outside of the student bod Each year as the needs of the College are presented to the Legislature, empha is put upon the fact that there is a growing field of service for the College, th the several groups carrying on the business and industry of the State are co tinuing to come to the College for additional service. That this is true, and th the College as a service institution will probably never reach the point where will not be called upon for additional service activities is evidenced by the fa that three important groups involved in Agriculture in the State have come to t College repeatedly during the past year to emphasize their needs for addition help. The first of these is the group having to do with the maintenance of tu This group is made up of the greenkeepers, whose job it is to keep the golf cours of the State in satisfactory condition; the superintendents of parks and of cemeterie Offhand, one might think that the maintenance of turf is not a difficult unde taking. However, surprising figures are available showing the investment golf courses, parks and cemeteries, all of which are absolutely dependent up maintaining certain areas of turf free from injury by diseases or insects. A secon group which has been insistent that we give additional help are the breeders dairy cattle, as well as those who use dairy cattle for the production of milk. Th group, which represents probably the largest investment, as far as farm anima

re concerned, has been carrying on, through county associations, the testing f farm animals to insure maintenance of breeds and improved milk production, c. The work of these county testing associations has been of very great value nd yet the breeders of dairy animals have not been fully satisfied. Fortunately, e have been able to so arrange matters as to give some additional assistance to is group for the coming year. The third group is made up of those engaged in e ever increasing poultry industry of the State. Excellent leadership on the art of their associations has put the poultry industry of the State into an enviable osition as compared with the industry in other states. Through the past year or vo the industry has been faced with a difficult situation as far as poultry feed is oncerned. Not only has there been increasing cost, but producers of feed have een offering feeds with certain, or rather uncertain, vitamin content, etc. The dustry feels that it must have service from the College which will determine e value of these feeds as to vitamin content, radiation, etc. Unfortunately, the ollege is not in a position to give this service unless additional appropriations re granted by the Legislature.

These three examples are given merely to emphasize the fact that the College serving an Agriculture of growing importance in the State. Numerous examples ould be given of pressure for service from other phases of industry and business.

During the past year, a study has been made at the College of existent facilities hich might be used to assist the industries of the State, particularly in the way f research. The results of the study were really surprising in the way of showing e number of departments at the College which could give additional service to dustry as it may be needed. At the present time such departments as Chemistry, acteriology, Agricultural Engineering, Food Processing, which has been known s Horticultural Manufactures, Forestry, and other departments, are working ith numerous industries on their problems. Industry through the State is learning adually that the College can be of assistance and it is my feeling that insofar s we can give this assistance, it should be given.

The opportunities which the College is facing for increasing its service in the eld of recreation is growing and there is every evidence that the College is exercising fine type of leadership in this field. These opportunities have grown in part out f the Annual Recreation Conferences which are held each spring at the College. ast year the Recreation Conference brought more than five thousand people to he Campus for participation in the various sessions of the Conference and for the xhibits. The Western Massachusetts Winter Sports Committee is a direct out- rowth of the Conference and it might be said that the courses in Recreational eadership and Nature Study are equally an outgrowth of the Conference. The rogram for the training of recreational leaders, which has been developed in ooperation between the Departments of Landscape Architecture, Forestry, and hysical Education promises to fill a very real need. Already there have been alls for men trained in recreation from such public agencies as the National Park ervice, Forest Service and state agencies which, unfortunately, the College could neet in part only. Recreation is considered to be one of the great industries of he State and the College feels that both training for recreational leadership and ervice in the development of community recreation are well within its scope of ctivities.

Business Administration

In several recent articles and books on college administration, emphasis is laced on effective business organization for a college or a university. One author, n discussing the qualifications for service as a college president, emphasizes the act that a college president must not only be an educator and have a keen sense or right public relations but he must be something of a business man. It has ecome increasingly evident to me with the passing of the years that the President f the Massachusetts State College should know something more than the principles f business organization and activity, particularly as he is called upon to supervise he handling of more than a million dollars a year; in fact, the responsibility of the President is more than supervision and if an error is made in even a small expenditure hat error may be laid at the door of the president.

While it has been my aim through the past five years to bring about more busine like operation of the various activities of the College, and some very helpful chang have been made that seem to have brought more efficient business operation, y unfortunately, it is often difficult in an educational institution to make even nec sary business changes where such changes might be simple in an outside busine activity. Long established procedure, men and women with long periods of servi to the College back of them, and the possibility of question from the outside m make it difficult to carry through changes in organization or procedure that real should be made to bring about the most effective functioning of what might l called the business side of the College. One example of this is the very slow progre which has been made in centralizing the various services which have to do wi the maintenance of the college plant and campus. Within the first three mont after taking up work here, I raised the question as to why there should not be centralized control of the three services; namely, Heating and Sanitation, Repa and Grounds. It was my opinion then, as it is now, that these services would l more efficient and certainly more economical if there could be a single superi tendent, preferably with an engineering training and experience, who would l responsible for all maintenance activities. Within the first year, one move in th direction was made through the transfer of the Grounds Service from the Depar ment of Horticulture to the Treasurer's Office. It is my hope that within less tha a year the three services may be put under the direction of one man who has ha satisfactory training and experience.

Some Needs

In each of my annual reports since coming to the College, I have emphasize the need for additional buildings and for some additional land. We were ver fortunate in securing a P.W.A. allotment which gave us a new library, a men dormitory, and rather satisfactory reorganization of our heating lines. This wa followed by a small grant for the reorganization of the old library which today i a very useful classroom and office building. We felt for a time during the pas spring that we would receive still another allotment for the reorganization of Sout College for administrative purposes. This request for South College met wit the approval of the Emergency Public Works Commission and the generous approva of His Excellency, the Governor, but met insurmountable obstacles in Washingto It is doubtful whether the College will be able to secure any further Federal allot ments for construction purposes of any kind.

Each year for the past three years, and under authority from your Board, ther have been special items in our budgets calling for the construction of a Women' Building, a Physics Building, a central garage and repair building, a small buildin for herd sires, etc. There are two buildings which the College must have befor it can function effectively with the present number of students. The first of thes buildings is a Women's Building to house the work for women on the Campus, a well as the Experiment Station and Extension Service home economics activities The work for women is now scattered among nine different buildings on the Campus

The field of work which is probably most seriously crippled by lack of satisfactor space is that of Physics, and therefore a Physics Building is second in importance The Department of Physics is excellently staffed and is doing a fine piece of in structional work under the most adverse conditions. The Department is occupyin a wooden building, the first building to be built on the Campus, which was erecte as a botanical museum. The building is not only too small, resulting in the worl being crowded from the basement to the attic, but the laboratories are not satis factory for the effective teaching of Physics. Plans have been drawn for a Physic Building to form the second half of Marshall Laboratory which now takes care o the work in Bacteriology and Physiology.

The need for a central garage might well have been discussed under the headin of the business problems of the College. Many of the activities of the College on the Campus and on the Farm, have been motorized without buildings bein constructed for the housing of such motorized equipment. The College now own a number of automobiles, trucks and tractors and these are housed largely i sheds and barns and there is no satisfactory repair shop except a small repair sho

the heating plant. It would certainly make for economy and efficiency if there uld be constructed for the College a central garage with satisfactory provision r repair work. Plans have been drawn for a brick addition to the heating plant ich would give a very satisfactory central garage.

For five or six years, and under your authority, a special item has been put into e budget of the College for a barn for herd sires. The Farm maintains six breeds cattle and present housing facilities allow but one bull to each breed. A small rn to house six additional bulls would make the work in Animal Husbandry ore effective and would make possible breeding research which cannot now be ne.

And, finally, thought must be given to the needs of the College for an auditorium. he largest auditorium at the College is Bowker Auditorium in Stockbridge Hall. is seats comfortably about nine hundred. With more than fifteen hundred udents in the entire student body, it is more than apparent that the College, fore many years, must have an auditorium large enough to seat at least the tire student body. Furthermore, a larger auditorium would make possible creased service to the Commonwealth by making available the facilities of the llege for meetings and conferences requiring an auditorium that will seat one ousand or more people. We have had several requests in the last two or three ars for the holding of conferences and meetings at the College which we could t satisfy because even Bowker Auditorium was too small for the group that sired to come to the College. Plans have been prepared for an auditorium to at approximately three thousand with a room in the basement in which at least e thousand people may be fed. There is no room on the Campus now where lumni luncheons may be held, of such size to take care of Alumni wishing to tend the luncheon, except the Cage of the Physical Education Building. As e Cage has an earthen floor, it is not satisfactory for the holding of luncheons d dinners.

It seems to me that I should emphasize to the Board from year to year these eds for additional space, particularly as the demands upon the College for mission of additional students are increasing as well as demands for assistance the way of facilities for meetings and conferences of all kinds.

Through your interest and help, a special item of $7,000 was secured three years go for the purchase of the so-called Tuxbury property, lying immediately north Eastman Lane, that is, north of Thatcher Hall, which the College had leased r some twenty-six years for the use of the Experiment Station. As the College as crowded its activities onto the land occupied for years by the Farm and Experi- ent Station, the need for some additional land has become increasingly evident. wo years ago, your request for an item of $12,000 for the purchase of the so-called ickinson property of 69 acres, lying immediately north of the Tuxbury property, as accepted by the Budget Director and by His Excellency, the Governor, but as refused by the Ways and Means Committee. Immediately thereafter the roperty was sold and probably will never again be available in its entirety for the ollege. In a way this was very unfortunate as the Dickinson property is the last rge piece of land of a satisfactory character which is available. For several years e have asked for from $2,500 to $3,000 to purchase the so-called Powers property, hich consists of a small house and a half acre of land lying entirely within the ampus. We have also asked a special item of $5,000 for the purchase of six cres lying on the ridge to the east of the Campus and immediately south of the lark property. Under your authority, these two items are in this year's budget- ut the financial policy of the State may prevent their being included in the appro, riation bill. As it is entirely possible that the Powers property may be sold for n outside restaurant or for some other purpose, it is essential that this property e purchased. Again, I feel that I should emphasize to this body the necessity for cquiring what seem to be very necessary pieces of land.

Campus Events

The Campus of the College is finding a far wider use than was envisioned per- aps even by the founders. During the past year nearly 60,000 people visited the Campus in connection with the holding of various educational meetings through-

out the year. Outstanding among these educational offerings were the ann Horticultural Show, the Recreation Conference, Elementary Principals Confere and Farm and Home Week.

That the College has taken a position of leadership in education on a br basis may be indicated by the fact that during the past year the Association University Governing Boards met on our Campus and such other organizati as the New England Country Life Conference, Rural Rehabilitation Group an group concerned with Adult Education.

When it is considered that these events are planned and carried out in addit to maintaining the regular program of resident instruction of the College, it m be seen that the College is making every effort to assume its rightful place leadership in educational progress.

The Student Body

While there are several different groups which are considered to be import factors in the operation of any college or university, and while no one of th groups can be eliminated from the activities of the College, yet by far the m important group is the student body. The Governing Board, the Faculty, t Alumni, are all important and necessary, but the College would have no reas for existence were it not for its student body. It is my strong belief, after fi years at the College, that Massachusetts State has been fortunate indeed throu the years in the character of its student body. The College has appealed from t very beginning to students from families of moderate means and this has mea that young men and women have come to the College with a very definite purp in mind and with a determination to secure a college experience regardless of ha work and cost. The College today has a splendid group of young men and wom who, with very few exceptions, are here for a purpose and that purpose is t securing of a preparation for fuller and more effective living in the years ahea

This year the College has accepted its largest registration in its undergradua division. Because of some additional classroom space in the reorganized c library and a few additional instructors made possible through increased Fede Funds, the Dean's Office accepted a freshman class of 348, bringing the tot registration in the undergraduate division to 1,120. The Stockbridge Scho which gives a very effective two-year vocational course has been growing slowly numbers and has this year a registration of 281. This School is doing an unusual fine piece of work and through the past twenty years has given its certificate to few more than 1,300 young men and women. The record which these young m and women have made is evidence enough, if evidence is needed, as to the val of the work of the School and its fine contribution to the Commonwealth. Th Graduate School is continuing excellent work with numbers approximately th same as during the past five years. The School is not in a position to take mar more than 150 candidates for advanced degrees.

Earlier in this report, and in discussing the objectives of the College, I ha emphasized as an important objective the need for better housing of our stude body. Better housing means not only a satisfactory place to sleep and eat b it means housing of a character that will not break down in any way the valu which have been built into the lives of our students through satisfactory hom conditions. In other words, the social and spiritual needs of a student body ca be improved greatly by satisfactory housing. Everyone who knows anything college work is ready to agree that the College is not efficient if it is not meetin the educational needs of its body. Today thinking people appreciate the fa that the College must do more than meet the educational needs only. It mus meet the social and spiritual needs of its student body.

If our objective is to send out into the world well-educated men and wome then that objective must be met not only through the work of the classroom an the laboratory, but through surrounding the student body with the right cultura and spiritual atmosphere. It is more important than ever before, and I consid it to be an obligation of the State, to see that the student body of such an institu tion as this shall have opportunities to hear and learn something of the great musi of the world, to know the great pictures of the centuries, and to become acquainte

th writers and poets. Housing must be of such a character that cultural needs ay be met as a part of the housing. This is one reason why we are emphasizing e need for a Women's Building. In such a building, though its essential need is meet classroom and laboratory purposes, it is equally essential that it shall ing to the lives of our young women the best in home organization, home exriences, such as the right meeting and entertainment of guests and the right bringing of children.

In discussing the spiritual needs of the students, I wish to make it perfectly ear that reference to spiritual needs has nothing to do with religion. It is my lief that the religious activities of the student body are being handled very tisfactorily through a Student Religious Council which is made up of equal mbers of Catholics, Jews and Protestants. As far as the religious life of the idents is concerned, it is our aim to see that nothing is taught or done at the llege that will cause any student to lose one iota of his religious faith. We ge constantly that the students shall not only be loyal to the church of their hers, but that they shall attend the churches to which they belong, faithfully d regularly.

Because of our concern with proper housing, we have been paying increasing tention to the living of men in fraternity houses and of women in sorority houses. some of the colleges and universities of the land, fraternities and sororities have come a difficult problem. They have not become a problem at this College cause the students who brought these fraternities and sororities into existence d to be economical and practical in the purchase or construction of houses and furnishing and maintenance. It is my firm belief that the fraternities and rorities connected with this College have made a very real contribution to satistory housing at the College. As indicated in a recent report to this Board, the ministration is exercising every care to see that the houses are run in a safe and nitary way. I believe that the College could well lend itself in assistance to th fraternities and sororities in the way of more efficient business management.

Not only is the subject of better teaching being given constant attention at the llege, but within the past two years we have given much thought and discussion more effective student guidance and employment. Under your authority, we ganized some three years ago a student placement activity as a part of the dministrative Division of the College. Three members of the staff, two men d a woman, are now giving their entire time to this activity, and it is my firm lief that the investment is a sound one for the College and the State. Conferences ve been held and will be further continued out of which should come more effective dent guidance. It is our hope through the coming year to put student guidance to a sounder and more satisfactory basis. The placement work which is carried both for the Stockbridge School and the undergraduate division is meeting very great need. Not only does the Placement Service concern itself with young en and women as they go out from the College, but it has been increasingly tive during the past year in assisting older Alumni of the College to place themlves more satisfactorily. In this connection, let me say that the Placement rvice has done an excellent piece of work in centralizing and managing the ployment of students. Some two years ago, it was found that the employment students was a scattered activity and that in a few cases certain students were ing allowed to earn a considerable amount of money while others were not being ken care of satisfactorily. A series of conferences brought about the centralizaon of the activity so that today the Placement Service not only knows the needs t guides the employment of all students on the Campus.

An outstanding contribution to Campus life during the past year was the inallation of a ten-bell chime in the tower of the Old Chapel made as a gift to the llege by Mr. Bernard H. Smith, Class of 1899, of Brooklyn, New York. The ime was dedicated to the memory of Dr. Warren E. Hinds, also of the Class of 99.

The addition of the Chime to Campus life will make, I am sure, for increased preciation of the beauty of our Campus on the part of students and faculty alike. here is a harmony in the sound of bells which cannot but operate imperceptibly make the experience of going to College a more satisfying accomplishment.

Curriculum Evolution

No college administration would care to admit that its program was not ever-changing and improving program. Earlier in this report, there is discuss of the constant change taking place in our educational institutions. This cha is particularly noticeable in this College in the curricula of the various divisio Any one who has had to do with the development of a curriculum knows tha must be kept in a fluid state to meet changing student interests and needs a changing needs in the professional and public life of the country. At every Ann Meeting during the past five years changes and additions in the curricula of divisions have been presented to the Board through the Trustee Committee Faculty and Program of Study. Some additional changes are being presented the Board today. These changes do not involve the introduction of new lines work but rather the strengthening of work that has been underway for so years.

When I came to the College in 1933, I found certain overlapping and duplicat in three fields of work; namely, Economics, Engineering, and Zoology and Geolo including Entomology. Four years ago, I brought to the Board for action cert recommendations as to clearing up the situation in Economics, particularly t this field of work might be improved and strengthened. You authorized setting up of a separate Department of Economics with the transfer of Agricultu Economics to the Department of Farm Management. To make this effective, y changed the name of the Department of History and Economics to the Depa ment of History and Sociology. By this action, Economics, which had b taught in three different Departments, was centered largely in the Departm of Economics in the Division of Social Sciences, and the work in Agricultu Economics was combined with Farm Management in the Division of Agricultu These changes have worked out splendidly and it is now recognized that the w in Economics, in Farm Management and in History and Sociology are not o more effectively organized, but taught with much greater satisfaction to Faculty and student body.

Last year, you authorized the separation of Entomology from the Departm of Zoology, Entomology and Geology, with the re-establishment of a separ Department of Entomology. This has been a wise move and is making it possi for the College to regain somewhat its leadership in the field of Entomolo Recommendation has been made this year to the Committee on Faculty a Program of Study of further change in Zoology and Geology to the end that t lines of work which are not particularly related may be separated and that with adding to either personnel or cost of operation. This recommendation is t Zoology be joined with Entomology and that there be set up a separate Depa ment of Geology and Mineralogy. A reasonable understanding of Geology fundamental to work in Agronomy, which is a basic subject in Agriculture, Horticulture, and particularly Forestry, and to certain phases of the work Chemistry and Bacteriology.

As indicated above, there has gradually grown up at the College certain w in Engineering, particularly in three different Departments; namely, the Depa ment of Mathematics and Civil Engineering, the Department of Agricultu Engineering and the Department of Landscape Architecture. There is, of cou no good reason why Civil Engineering should be taught in three different depa ments, except that these departments have felt that Civil Engineering could taught best to meet their particular needs. Recommendation has been made the Committee on Faculty and Program of Study that Civil Engineering be se rated from the Department of Mathematics and combined with Agricultu Engineering, under the general name of a Department of Engineering. This make possible the teaching of necessary courses in Civil Engineering and su other Engineering as may be needed by students in Agriculture, Horticulture a the Physical and Biological Sciences, in a much more efficient and economical w

The Future

In closing this report, it may not be out of place to answer very briefly question as to the future of the College. Let me preface this answer by say

at I am more convinced than I was at the end of my first year here that the ollege is a credit to the Commonwealth of Massachusetts. It is well organized, ell staffed and under the leadership of your Board is going forward effectively in e carrying out of the objectives outlined in the Federal Charter of 1862 and the ate Charter of 1863. The College has an exceptionally fine student body of a w more than 1500 men and women. Its Campus is a beautiful place and while needs additional buildings, the present buildings are well maintained and generally ed to their limits. The almost endless number of organizations in the State have und the Campus and the buildings to be a very satisfactory place for meetings d conferences. This is evidenced by the fact that more than 50,000 people me to the Campus each year for meetings and conferences of all kinds.

The changes discussed in the earlier part of the report, involving as they do our onomic, social and political life, will bring changes in the organization and work the College. This is to be expected and certainly not to be feared. The people the Commonwealth, as a whole, have a very deep interest and concern with ucation, and there is every indication that it is the desire of the people that the ollege shall go forward, certainly to more effective and possibly to greater accomshments with the passing of the years. Boards of Trustees, Presidents, and culties may come and go, but I am confident that the College will go forward th a sound and satisfactory program of greater service, not only to the great st of young men and women who have come to the College and who will come the future, but to the Commonwealth as a whole.

On the Campus at the College there is goodwill and loyalty among students d the entire professional and technical staffs, and when I speak of the Campus, nean not only what is known as the Campus at Amherst, but the Field Station Waltham and the Cranberry Station at Wareham. Those stations are just as uch the Campus of the College as the area known as the Campus in Amherst. ere has been constant goodwill and helpfulness shown me during the past year Trustees, Faculty, student body and Alumni, and I would be lacking in friendliss and appreciation if I should close this report without expressing my heartfelt anks for the opportunities which the year has brought me to work satisfactorily th all of those who had to do with the College. No college or university can do work satisfactorily and prosper without cooperation, goodwill and more, friendliss. Mistakes have been made, but they have been mistakes of the head rather an the heart. Whatever the time left to me for service to the College, I need, d I am sure I shall have, friendly cooperation and goodwill of all who are working a satisfactory future Massachusetts State College.

HUGH P. BAKER,
President.

BUDGET ESTIMATES FOR 1938

The budget of the College for 1938 as approved by the Board of Truste is indicated below.

General Maintenance

	State Funds		Federal Funds		To
	Personal Service	*Maintenance*	*Personal Service*	*Maintenance*	
Resident Instruction					
Instruction	$289,605		$104,620		$39
Short Courses	55,845	$10,350	2,370		6
Department Maintenance	49,200				4
Farm	34,500				3
Travel	4,800				
Supplies and Equipment		106,430			10
Administration					
Administration	61,350				6
Trustee Travel		1,200			
Printing		1,300			
Plant Operation and Maintenance					
Operating Maintenance	127,000				12
Heat and Light		55,000			5
Repairs		22,000			2
Replacements		11,000			1
Extension Service	81,571	31,900	77,659	$9,000	20
Experiment Station					
Experiment Station	121,537	20,700	94,680	9,260	24
Waltham Field Station	7,000	9,000			1
Control Services					
Fertilizer Law	13,170	3,650			1
Poultry Law	25,500	7,400			3
Milk Inspection Law	600	550			
Seed Law	6,060	1,400			
Dairy Cattle Cert.	6,030	2,500			
Feedstuffs Law	11,000	2,100			1
Totals	$894,768	$286,480	$279,329	$18,260	$1,47

Special Appropriations, 1938

The Trustee budget for special appropriations for 1938 includes twenty- items totaling $591,100. The first six items are for construction of buildings, next two for important land purchase, the next eight for repairs and improvem to plant, three for improvement of services, and two for special and emerge needs.

I. NEW BUILDINGS

1. *Women's Building* $250,

For several years requests have been submitted for this much needed building. Growth in enrollment of women students has far exceeded provision of facilities for their accommodation until the situation has become serious.

2. *Physics and Classroom Building* $200,

Present facilities for instruction in Physics at this College are very inadequate. The department is housed in an old wooden frame building which is much too small to accommodate the number of students taking courses in the department and which does not afford the opportunity for precision measurements and other laboratory exercises which are very important in this field. At the time the present Bacteriology Laboratory was constructed in 1915, plans were prepared for a complete building of which the present structure is only half. The other half of the building would house very efficiently the Department of Physics and would provide in addition much needed classroom space. It is the proposal herein to complete the Bacteriological Building for this purpose. If it is impossible to include two major building items in one year, the Trustees recommend that prior consideration be given to Item 1.

3. *Central Garage and Service Building* $35,000

A central garage for the fifteen automobiles, trucks and tractors owned by the College would be an economy from the point of view of maintenance and operation; also, there is need for paint shop and repair shop in connection with our general maintenance work which could be provided by the building herein proposed.

4. *Greenhouse and Headhouse* $20,000

The two Experiment Station glass houses are much in need of repair. Mr. Jewett and others are of the opinion that the cost of putting them in workable condition is prohibitive. Moreover, these houses are obsolete as far as construction and adaptability to the type of work now being conducted in them is concerned. Therefore, it is proposed that these houses be taken down and a new unit constructed near the present Agronomy greenhouse in the rear of Stockbridge Hall. To accommodate the various lines of research work now being carried on would require greenhouse facilities consisting of a house 100 feet long with a headhouse 40 by 24 feet.

5. *Incinerator and Building* $4,000

There is urgent need for this type of equipment since all of the Institutional rubbish now has to be dumped in one section of the College Farm. This location has not only become saturated requiring other provisions, but this method of disposal is unsanitary and expensive. Power Plant boilers have been used to some extent for disposal of rubbish but this has caused difficulties and the practice has been stopped by Executive order. There is urgent need for such facility as this project would provide.

6. *Barn for Herd Sires* $3,000

The College maintains six breeds of cattle and at the present time has housing facilities for only six bulls. This necessitates disposal of good bulls prematurely from a standpoint of progress in breeding which is a very important part of the College educational program. Additional facilities for herd sires should be provided. We should have two bulls of each breed on hand continuously.

. LAND PURCHASE

7. *Avery Tract* $5,000

This tract of land composed of six acres adjoins the College property on the south and should be owned by the College, particularly since it is close to the site where it is planned eventually to locate buildings for women students.

8. *Powers Property* $3,000

This property consists of approximately one-half acre with buildings and is situated almost in the midst of the Campus being surrounded by College property on three sides. It is very close to present College buildings and should be owned by the Institution, for if continually held in private hands, it might well be exceedingly detrimental to the best interests of the College.

I. REPAIRS AND IMPROVEMENTS TO PLANT

9. *Painting Buildings* $6,000

Twenty-seven of the major buildings on the Campus and many of the small buildings are in need of painting. In a great many places paint is off entirely and the putty is very poor on the sash. There is need for much inside painting, especially the refinishing of wood trim such as doors, sash, stairs, plaster, walls, ceilings, etc.

10. *New Electric Wiring at Goesmann, Stockbridge, Clark and Paige Laboratories* $11,

The present lighting and wiring in these buildings is poor and inadequate. The wiring is not of sufficient capacity to meet the needs of the work within the building and is unsafe in its present condition.

11. *Replace Ammonia Compressor at Dining Hall and Install New Set of Refrigerator Boxes* $6,

The old compressor needs to be replaced and the present boxes are not in good condition. The Dining Hall project pays annual rental to the State for use of facilities and those described herein are much in need of replacement.

12. *Improvements at Draper Hall* $6,(

With increased use of Draper Hall, there is need for improvements in the matter of acoustic ceiling in the main dining room and rearrangement of serving room, public rest rooms, etc. The changes contemplated would make possible a more efficient operation of the Dining Hall and much of the work contemplated is in the realm of necessary repairs.

13. *Rebuild Laboratory Tables in Physiological Laboratory at Marshall Hall* $3,0

The present tables are too high and too wide for the best work on the part of students. Furthermore, with changes recommended, the laboratory could be made to accommodate 16 more students per section, thus making demonstration work more efficient. This project has been submitted for several years and with increasing enrollment in Physiological courses, its need has become urgent.

14. *Repairing and Repainting French Hall Greenhouses* $3,0

These greenhouses were erected in 1908 and records indicated that the glass has never been removed and reset since that time. They were painted last in 1932. Some of the interior woodwork is in need of repair. The glass should be removed and relaid in putty since some of the roofs leak badly and the houses should be repainted inside and out.

15. *Completion of W.P.A. projects for Women's Athletic Field and Tennis Courts* $4,0

There is needed a wire fence around the women's athletic field constructed as a W.P.A. project. The field is surrounded by terraces and balls continually go over the bank into crop areas and individuals climbing over terraces do much damage. A wire fence of approximately 1600 feet is estimated to cost $2,000.

The College now has three tennis courts for use of a student body of 1,500 and additional ones are greatly needed. A project is now underway under W.P.A. for some additional courts but it is difficult to determine when, if ever, it will be completed. The proposal herein is for the construction complete of two additional courts.

16. *Inside Water Cooling and Recirculating Tower for Refrigerating Machines at Flint Laboratory, Dining Hall, Pomology Cold Storage, Farm Dairy and Horticultural Manufactures* $2,60

These refrigerating machines consume large quantities of water for cooling purposes which now runs to waste. This cooling water amounts to quite a percentage of the total water used by the College. Cooling the water for recirculating would effect a decided saving in water costs.

IMPROVEMENT OF SERVICES

7. *Field and Laboratory Work, Shade Tree Diseases* $5,000

This is a continuation of the project which has been carried on under special appropriation for several years, particularly with reference to the Dutch Elm Disease and its insect or other carriers.

8. *Research Service to Poultry Industry in the Field of Vitamin Values in Feedstuffs* $5,000

This renews request made for several years for expansion of service under the Feedstuffs Control Law. When feed control legislation was enacted some 40 years ago, requirements were based on knowledge of that day. Since then, marked progress has been made by science in pointing out other factors which influence the value of feed which are not now measured by laboratory tests. It is the purpose of this project, to make it possible to check on the claims of vitamin potency and other factors made by a large number of feed manufacturers for products which they make and sell.

9. *Research Service in Turf Improvement* $7,500

This item is placed in the budget to meet continuing and increasing demands from the greenkeepers of the State, park and cemetery authorities and organizations, for an adequate research program in turf improvement. The investment through the State in golf courses, parks, cemeteries, parkways, etc., is so great that this is very positive need for research work to be carried on at the College and the Waltham Field Station to assist greenkeepers and others in maintaining their turf in satisfactory condition.

SPECIAL FUNDS

20. *Productive Enterprise Fund* $4,000

This fund has been provided for many years and was originally established as an offset to the lack of a revolving fund for the productive enterprises of the College. This fund is used when specifically authorized by the Governor and Council to meet emergency situations in productive departments and control services and to finance changes in the operation of these departments when it can be shown that such changes will increase the income to the State sufficient to warrant the additional investment.

21. *Aid to Students* $7,500

For several years, the sum of $5,000 has been appropriated annually and has been used to aid worthy and needy students to pursue their College course. It has been used only to pay these students for labor in worth while work on the Campus. Demand for such assistance on the part of students always exceeds the facilities of the College for rendering such aid. It is with the desire to meet the insistent plea of worthy students for opportunity to work to meet their financial needs that it is proposed herein to increase this annual appropriation.

$591,100

REPORT OF THE DEAN

Enrolment

With an enrolment of 1,083 in September, 1936 and 1,120 in September, 1 Massachusetts State College can no longer be classed as a small College. increase of 37 was caused by the admission of a larger freshman class made poss by the addition of several new instructors and the renovation of the Old Ch to give much-needed additional class-room space.

The problem of limiting enrolment is becoming increasingly difficult and e the best plan devised for selecting an entering class from a qualified list of stud is unsatisfactory. Some idea of the problem confronting the Committee on missions may be gained from the following figures. The number of applic actually qualified this fall was 451. Late applicants, many of whom could m our entrance requirements in full, numbered at least one hundred more. Of number 426 were accepted, 346 of whom registered. The reasons why 80 of students accepted did not finally matriculate may be listed as: (1) financial ficulties, (2) acceptance at another college, frequently with a scholarship gr and (3) change of objective. More than 100 of the more than 125 qualified ap cants refused admission were women. Ninety-seven percent of the total num of students in the College are Massachusetts residents. Thirty percent of total enrolment are women.

Divisional Elections

The student enrolment in the six Divisions of the College for the last four ye was as follows:

1934–1935

Class	Agric.	Hort.	Home Ec.	Soc. Sci.	P. & B. Sci.	Phys. Ed.	Tot
1935	11	35	18	48	91	0	20
1936	14	27	27	68	97	2	23
1937	15	25	25	55	139	0	25
1938	16	30	38	81	156	0	32
Total	56	117	108	252	483	2	1,01

1935–1936

1936	14	22	27	76	81	2	22
1937	17	18	23	69	111	1	23
1938	10	25	32	78	130	0	27
1939	22	19	33	80	173	0	32
Total	63	84	115	303	495	3	1,06

1936–1937

1937	19	18	22	67	97	1	22
1938	28	19	30	85	98	0	26
1939	17	13	29	73	138	3	27
1940	16	17	40	54	181	9	31
Total	80	67	121	279	514	13	1,07

1937–1938 (*1st semester.*)

1941	25	23	50	71	180	4	353
1940	9	21	36	59	141	0	266
1939	17	23	31	74	99	1	245
1938	28	18	27	82	87	2	244
Total	79	85	144	286	507	7	1,108

When the slight increase in the total enrolment from year to year is not ove looked one notes very few striking variations in any particular Division of Specia ization during this period.

Possibly Agriculture may be considered an exception because in this Divisio there was a larger increase in 1936–1937 than would be occasioned by the sligh increase in the student enrolment during that year. This may be attribute directly to a strengthening and rearrangement of courses and the knowledge tha there were definite employment opportunities after graduation.

The slight drop in Horticulture is due to fewer majors in Pomology and Landscap Gardening and the practice of having certain majors in Forestry transferred t the Division of Science.

Curriculum

In an effort to make individual courses more effective and give students more ne to study, the credit requirements for graduation of the junior and senior ars were reduced from 72 to 60 semester hours. Through prescribed courses ring the first two years, involving English, foreign language, Mathematics, ence, social science, physical education and military training, breadth of knowl- ge is encouraged. The wide general background is calculated to give the student ersity of outlook and high ideals of social responsibility.

The specialized work of the last two years is designed to give the student an portunity to develop his native abilities. In general, four or five of the ten urses carried in the junior and senior years are devoted to the major subject d the remaining courses are elected by the student with the direction and con- t of his adviser.

The curriculum for Recreational Planning recommended by a special faculty mmittee last year was approved and went into effect this fall. A faculty advisory mmittee under the chairmanship of Dr. Charles Fraker directs the work of dents specializing in this field. The new courses introduced were: Agronomy—"Maintenance and Service Considerations;" Zoology—"Field Studies in Natural ence;" Sociology—"Public Relations in Recreational Planning;" and English—"Dramatic Production."

For the purpose of furthering the educational program in the field of government, ee new courses in Political Science were approved. These will stress the func- nal aspects of government. These courses are: "The Elements of Public Ad- nistration," "Municipal Government," and "Administration and Political ence Seminar." They are offered by the Department of Economics and will taught by Dr. Charles J. Rohr, a new member of the faculty, who is also directing recently established governmental research service in cooperation with city, vn and county officials.

Several new courses were approved in the following Departments: Education, riculture, Mathematics, Physics, Psychology, History, and Sociology. Needed nges and consolidations of former courses have been made in an effort to bring m into harmony with the reduced credit requirements for graduation.

With a large number of students specializing in the Social Sciences the Chemistry uirement for all students appears no longer desirable. Accordingly steps are ng taken to modify the freshman curriculum so that students may have an ion between Chemistry and Biology during their freshman year.

Improvement in Teaching

Whatever success the College may achieve depends ultimately upon the effec- eness of its teaching. Financial support, buildings, library, equipment, labora- y facilities, preparation of staff, size of the student body—all these are important. t in the difficult task of the development of the human intellect and spirit hing has been found to replace the sympathetic contact of teacher and student, helpful attitude inside and outside the classroom. The interested, inspiring chers do much to create those intangible assets which make a college great. the teaching profession there is no place for the incompetent, the indifferent or cynic.

Every good teacher has a distinctive personality and a unique method of work. s method should be based upon the accepted principles of pedagogy, intelligently dified to fit the needs of his particular field, and should assure his students the t possible grasp of the subject in all its implications and applications. He uld help them to develop self-confidence and a wholesome faith in life and ative endeavor.

In an effort to strengthen teaching, frequent departmental and divisional meetings ve been held. Through them, teaching methods have been clarified and members one department have received a clearer idea of the work of other departments h the result that the institutional objectives are more fully understood.

A special committee of the faculty under the Chairmanship of Dr. Neet formu- ed a Set of Teaching Principles. A copy of their report has been placed in the nds of every instructor. It is pregnant with valuable suggestions for effective ching and class management.

A second committee undertook a study of the perplexing problem of teac training. Its report shows the present status of teacher preparation at the Colle It points out the necessity of mastering subject matter, the value of professio teaching courses and the place of actual experience in teaching. Adequate p vision for subject matter and professional courses in Education has already b made. The attainment of actual teaching experience is, however, a real ne The report outlines a plan under which prospective teachers may get actual tea ing experience. As outlined, this plan would make the Department of Educat wholly responsible for the course of the student for one semester during his sen year; one half of his time to be devoted to course work in Educational The and Practice, the other half to be spent in actual teaching in schools withi radius of approximately twenty miles of Amherst. A student training under t plan would not take any course in Education during any other semester. T plan is unique and it is hoped that the faculty may approve it and arrange for being put into effect next year.

Advisers

To assist first year students with their problems of adjustment and advise th in matters of course selection, methods of study, and campus traditions, the f lowing members of the faculty were selected: Dr. Andersen, Prof. Boutelle, M Briggs, Prof. Briggs, Dr. Caldwell, Prof. Cary, Dr. Fessenden, Dr. Goldbe Miss Hamlin, Mr. Helming, Miss Horrigan, Mr. Isgur, Mr. Kauffman, Assista Dean Lanphear, Dean Machmer, Prof. Marston, Dr. Miller, Miss Skinner, M Swenson, Prof. Troy. Their faithful service made it possible to give a consideral amount of personal attention to the individual student.

For the purpose of checking the progress of students and obtaining fa relative to student interest and performance, two reports on every freshman we made by the instructors during the first semester. These reports were assembl in the Dean's Office and formed the basis for discussion at freshman faculty me ings called for this purpose. In this way, the student mortality rate was kept lo

Convocations

Our weekly student Convocations have assumed an importance of the first ran They are held in Bowker Auditorium every Thursday morning and attendance compulsory. The programs are carefully planned with special emphasis bei given to those for Scholarship Day, Phi Kappa Phi Day, Constitution Day, Educ tion Week, two Insignia Convocations (under the auspices of the Athletic a Academic Activities Boards, respectively), and Senior Convocation. All oth Convocations are addressed by members of the faculty, outstanding educato travelers and lecturers.

While it is highly regrettable that any student should miss these Assemblie inadequate seating capacity has necessitated excusing an entire class each semest —the seniors, the first semester and the juniors, the second. The need of a auditorium to which I called attention in earlier reports is an increasingly imper tive one which should be met through the construction of a new building lar enough to seat at least 3,000 people. With a total student enrolment of 1,55 made up of 1,120 undergraduates, 280 Stockbridge School students, and 1 graduate students, and a resident staff of 356 persons, a Hall of this size is ful warranted.

Fraternities and Sororities

There are now eleven recognized fraternities and five sororities on the campu The total number of members and pledges in fraternities was 564 out of a total 787 students; i.e. 70 percent of the men students as compared with 64 percent 1935. The members and pledges in sororities number 212, or 64 percent of th 333 women students in the College. This compares with 61.7 percent in 1935.

The fraternities and sororities housed a total of 290 students, or 26 percent the entire student body. They boarded 360, or 32 percent of the students.

The longer rushing period used this year seemed to be an improvement, bu there is still the problem of the pledges who never finally join, a problem whic

ould disappear as the housing conditions are improved. These fraternal groups ntinue to assist the administration in the matter of student housing though eir effectiveness could be increased through added help from the College in the atter of their social and business obligations.

Commuters

With better roads and improved means of transportation the number of com- uting students has steadily increased. This year the number is 100, some of hom live as much as 25 miles from the College.

While commuting is done in the interests of economy many actually spend as uch or more than it would cost them to live on the campus. What is more serious the fact that commuters miss many of the special advantages offered by the llege. They do not have the opportunity to make full use of the college facilities, learn how to work and live with others, and to associate with their fellow stu- nts in extra-curricular activities. Then there is the inconvenience, wasted time d irregular eating habits all too frequently associated with commuting. The licy of the College is definitely directed towards reducing the number of com- uters to a minimum and improving the opportunities of those who must live vay from the campus.

The United Religious Council

The philosophy of the United Religious Council is one which frankly faces the ct that men differ in their religious beliefs and practices. The Council does not tempt to gloss over these differences; rather it seeks to create an atmosphere in hich the preciousness of each faith can be preserved and its uniqueness find pression. It has organized and its counsels with The Menorah Club for Jewish udents, the Newman Club for Catholic students, and the Christian Federation r Protestant students. These clubs offer effective religious opportunities to the ree religious groups which are found on the campus. If representatives of nother religious tradition were to come to our campus the Council would feel that should make possible for that group some effective means of religious expression. And yet the Council does not stop here. For it considers that one of its prime nctions is to teach Massachusetts State students how to live amicably with those ith whom they disagree. No responsibility rests more clearly on the tax-supported llege today than that which demands that it train its students in those attitudes hich will make our state and nation a more and more desirable place in which live. Cooperation is one of the prime essentials to this end. The faculty and e students who are active in support of the United Religious Council desire to velop the greatest measure of cooperation which can be achieved among the ligious faiths of the campus—always facing frankly the points of view which vide, but recognizing quickly the many points on which cooperation is possible. he Student Religious Council, the ranking student religious organization of the mpus, is composed of representatives from each of the religious clubs. This oup acts in an advisory capacity in the conduct of the Vesper services. It pro- otes such activities as the Annual Religious Lecture Series given in rotation by outstanding Jew, Catholic, and Protestant; the Freshman Handbook; and an nual parley on some question of social significance.

Conferences

Reference should be made in this report to the ways in which our students have ofited through attendance at important conferences. Our judging teams par- cipated in contests at the Eastern States Exposition, the National Dairy Products dging Contest at New Orleans, the International Live-Stock Show at Chicago, e Intercollegiate Poultry Judging Contest in New York City, and the Inter- llegiate Fruit Judging Contest of New England. The Dairy Products Judging am won a $600 graduate school scholarship at the New Orleans competition. his scholarship will enable the winner to pursue graduate study in the University his choice. Two students were recipients of scholarships made available through e Danforth Foundation which gave them two weeks training at the Purina ills in St. Louis and two weeks at the American Youth Foundation Camp at

Shelby, Michigan. One student represented the College at the Eastern Associ tion of Deans and Advisers of Men at their annual meeting in Atlantic Cit speaking on the subject, "What Students Expect of Advisers." Two delegat were sent to the Annual Meeting of the Associated Collegiate Press at Chicag The President of the Massachusetts Chapter of the National Association of Futu Farmers of America, who is a student at the College, represented his Chapt at the National Meeting at New York City. The United Religious Council del gated 59 students to attend nine different student religious conferences. Sure these stimulating contacts are not only beneficial to the particular students w are sent, but the College as well, since these inspired students become truly "Me chants of Light."

Conclusion

Much might be said about the work and activities of the student body. In word their spirit, attitude, and cooperation is convincing proof of their seriousnes Although far too many pursue their work under anything but ideal conditions, t results are creditable when viewed from the standpoint of individual growth a increased usefulness to the community and the State. Who can measure t potential value of the more than two hundred and thirty graduates released ann ally for careers of good citizenship and public service in a great variety of fiel of activity? The citizens of Massachusetts may take just pride in their Sta College.

William L. Machmer,
Dean.

REPORT OF THE DIRECTOR OF THE GRADUATE SCHOOL

The opportunities for graduate work are, in their very nature, so closely relat to the field of study in the undergraduate college that whatever progress or e pansion there may be is definitely consistent with general changes in the curriculu During the past year it was deemed advisable to list the Department of Olericultu among those considered qualified to offer a major toward the Master of Scien degree. Also, because of student interest and consequent expansion in offerin there is recognition of the need for advanced courses in conservation, recreatic and wildlife management which should eventually lead to a major in that fie The work in food technology has gradually defined itself to the point where t opportunities and objectives are covered by the following statement from t graduate school catalogue:

"Opportunity for advanced study in food technology is provided in order th qualified students may prepare themselves better to serve the numerous industr interests engaged in providing the consuming public with a more desirable fo supply. The plan for study arranged for this major, while intended to be flexib requires the student to confine himself largely to the graduate courses offered the following fields: Bacteriology, Chemistry, Dairy Industry, Horticultu Manufactures, and Human Nutrition. These courses, if properly selected, w satisfy both major and minor requirements. The proportionate contribution each department will depend upon the student's special interests within the fie but a minimum of six credits must be earned in each of the departments contributi to this major. Candidates for a degree in this major are assigned to an Advis Committee composed of representatives of the departments concerned with t Director of the Graduate School as Chairman. This Committee will direct t student's program in the hope that a procedure may be arranged that will prov most adequate facilities for the expression of individuality. The general requi ments for a degree in food technology conform to those specified for the Doc of Philosophy degree as provided by several departments except that this ma offers a wider range of subject matter. Students interested should consult t Director of the Graduate School."

That the offering of a graduate course in food technology was timely, w first listed in 1936, is best evidenced by the fact that there are at present n active candidates for the doctorate. This development is sure to have a profou

nd, it is hoped, a constructive influence on the educational policy, not only of the Graduate School, but of the undergraduate college as well.

The enrolment, too, has kept pace with the general growth of the college and his is as it should be. Increases have been slow but consistent, although the ecord will show that expansion has been most rapid in the last two years. Details f enrolment and degrees awarded for the last nine years are as follows:

Year	Enrolment	Ph.D. Degree	M.S. Degree
1929	51	1	5
1930	64	3	15
1931	91	4	19
1932	81	1	28
1933	103	1	42
1934	105	6	26
1935	113	6	28
1936	141	2	35
1937	161	2	48

The record might be interpreted as evidence that, at present, there is a greater nterest on the part of the student in seeking better preparation as a qualification or gainful employment than in the actual attainment of the degree. This, if rue, would indicate a very desirable trend in the direction of the type of service or which this and other similar colleges were primarily established. Worthy tudents are offered every encouragement, and in some cases a limited amount of nancial assistance, in continuing their education. There are at present twenty-wo assistantships available to graduate students. These pay an annual stipend f $600 with the opportunity to devote one-half time to graduate study. Also, here are regularly available about a dozen research fellowships supported by an qual number of foundations and industrial concerns which provide financial upport in general equivalent to $60 per month during the college year. Among he foundations, the one established by Mrs. Henry Lang, through the efforts nd interest of Dr. Joel E. Goldthwait, is espceially serviceable. It provides very iberal and much needed support for research in the field of human nutrition under-aken primarily to develop a lead toward the solution of the numerous so-called leficiency ailments which have recently become so generally recognized.

F. J. Sievers,
Director.

REPORT OF THE DIRECTOR OF SHORT COURSES

In December of 1918 the first work in the "Two-Year Course in Practical Agriculture" was begun with an entering class of 37 students as the pioneer group. n October 1937 we enrolled the twentieth freshman class in The Stockbridge School of Agriculture with 161 students. It seems appropriate therefore, to take backward glance over these two decades and see what results have been achieved. Such a survey may be helpful in providing the salient facts of our beginnings and growth for the more recent members of the administrative and teaching groups most closely concerned with this type of work.

The legislative resolution of May 1918 was the initial enabling act. It reads as ollows: "Resolved, That in the opinion of the General Court there should be established at the Massachusetts Agricultural College a two year course in practical agriculture upon the completion of which certificates of graduation should he granted; that the course should be opened to all residents of the Commonwealth who have attained the age of seventeen years and who possess the educational qualifications necessary for admission to any public high school of the Commonwealth." The trustees of the College took action upon this resolve at their October meeting of that year when they "Voted: That the College offer a course of study that will meet the intent and spirit of the Legislature of 1918 as embodied in the Senate Bill, No. 374."

The Great War was not to reach its finishing climax until November 11, 1918,

so that in the birth of the Two-Year Course during this national crisis there is vivid and unusual similarity to the origins of the College itself. One recalls th the Morrill Act, establishing the whole nation-wide system of Land Grant Colleg as we know them today, was passed by Congress in 1862, and signed by the Gre Emancipator, Abraham Lincoln, during the bloody strife of the Civil War.

That the war and its after-effects did influence the Two-Year Course at t start is shown by this statement in the first yearbook, "The Shorthorn," publish by the Class of 1921. "Though the attendance was small the first year on accou of the Federal draft, and unusually large the second year, owing to the fact th disabled men (ex-soldiers) were sent to the College by the Federal Board f Vocational Education, the demand for this course in this state is shown by t enrolment of one hundred freshmen, exclusive of Federal Board students, September, 1920." By June, 1924, most of the Federal Board students had co pleted their studies at the college and only a few remained when the Short Cou supervision was turned over to me, upon former Director Phelan's resignation September of that year.

With this introductory statement I will briefly trace other important ever in these twenty years.

1. Original plan of study: six months of classwork followed by six mont placement training on agricultural jobs the first year; nine months of study t last year.

2. First Supervisor of Placement Training, Paul W. Viets, employed in 192 He organized and carried out effectively an entirely new service, made contac with hundreds of employers for our students, and established a thorough syste of placement records. He resigned in 1927 to become Personnel Manager of t Plymouth Cordage Company, and with deepest appreciation of his service to t School we record his untimely death in November, 1937.

3. Ten different subjects were offered in the first curriculum of 1918, from whi a student selected at least three and not more than four courses. Each cour carried five class hours weekly. Fifteen teachers on the instruction staff.

4. Curriculum reorganized in 1921 to provide a choice of specific vocation training objectives. Instruction force increased to fifty-one. Seven definite maj programs started:—Animal Husbandry, Poultry, Dairy Manufactures, Gener Horticulture, Pomology, Floriculture, and Vegetable Gardening. A prescrib course in each major the first year, including English and Arithmetic.

5. Because of employer protest against placement work terminating befo completion of harvest in September when students were most needed, openi date was changed in 1925 to October 1, two weeks later than regular opening College.

6. Stockbridge Faculty Advisory Committee organized, and all departmen sponsoring major programs were made responsible for selection of courses include

7. Mr. Emory E. Grayson took up placement program where Mr. Viets left o and continued its development so efficiently that it became ground work for a all-College Placement Service in 1933 under President Baker's reorganization pla

8. Name changed from "The Two-Year Course in Practical Agriculture" "The Stockbridge School of Agriculture" in 1928, honoring Levi Stockbridge, Hadley farmer, and first Professor of Agriculture as well as an early President the College.

9. With the President's direct sponsorship, the first new major program, Wildli Management, was added to the original group of seven, in 1935. Also, the fir class of limited enrolment with carefully selected candidates.

10. In these twenty years the School has graduated eighteen classes awardin a total of 1,342 diplomas to date. More than 2,000 students have enrolled f varying periods of training.

11. At the request of the Massachusetts Hotel Association and by reason of large available selection of courses easily adapted to the purpose, the second ne major program in "Foods and Food Processing" was started in fall of 1937. Anoth limited course and selected candidates until program is thoroughly developed an tested.

12. Student enrolment for current year 280; 56 instructors, 9 major program 120 different courses.

Many Stockbridge Alumni Remain in Agricultural Occupations

No survey could be complete without emphasizing the fact that large numbers f our earlier graduates, as well as the more recent ones, are continuing resolutely nd successfully in the various fields of agricultural business for which their train- ng here has fitted them. At this year's Union Agricultural Meetings at Worcester, he Massachusetts Federation of Poultry Associations elected a slate of officers ith a former Winter School student as president, and Stockbridge graduates in he positions of vice president and secretary. Within a few months a new head rmer was selected at the Worcester State Hospital. The four leading candidates r the position were all Stockbridge graduates, and, as it strangely happened, all embers of the same class, 1932. Another graduate in just ten years has, at this riting, won signal recognition as a successful poultry breeder and had the leading en of birds at the Storrs Egg Laying Contest. Thus the small and hesitant eginnings of 1918 are amply proving their worth in 1938.

Financial Aid Still a Problem

While funds of the Lotta Crabtree Estate are definitely assigned to provide ans to aid graduates of the College (four-year degree-course only) in acquiring nd operating farm properties, the will has not been interpreted by the trustees f that estate to apply to graduates of the Stockbridge School of Agriculture. ince Miss Crabtree wrote these stipulations before the existence of this depart- ent of the College, she naturally selected the most logical agency at that time hrough which her desire to aid young farmers could be expressed. Today it is ot overstating the fact that by far the largest numbers of such agriculturally rained young people are graduates of the two-year vocational course at the College. Nearly two-thirds of these graduates come from cities or towns of the state and o not have the opportunity to return directly to home farms as does the other ne-third. It is this group for which such financial aid will have the greatest se and value in the coming years.

1937 Stockbridge Registration

	Seniors	Freshmen	Totals
Animal Husbandry	28	37	65
Dairy Manufactures	18	24	42
Poultry Husbandry	16	12	28
Fruit Growing	5	7	12
Floriculture	18	11	29
General Horticulture	16	42	58
Vegetable Gardening	9	7	16
Wildlife Management	8	11	19
Foods and Food Processing	–	10	10
Specials	2	–	2
	120	161	281

Poultry, Floriculture, and Vegetable Gardening show smaller registrations in he freshman class than do the senior enrolments in the same majors, a rather nusual situation. Horticulture has once more risen to the top figure in first year najors for the first time since 1930. Animal Husbandry, as a selection for the argest number in both classes, holds a steady and consistent lead year after year, ittle affected here in New England by depression or recession.

Stockbridge Honorary Scholastic Society

Acting on the suggestion of Miner J. Markuson, Assistant Professor of Agricul- ural Engineering, the Stockbridge Faculty Advisory Committee has adopted a lan by which suitable recognition will be given students who have achieved an xcellent scholastic record. An honorary scholastic society called "Stosag" has een established and the faculty selects its membership annually. Requirements re that no student shall have a grade below 70 and the average grade must be

85 or better. Consideration may be given to cases of outstanding work on pla ment training.

In recognition of these high ranking students special certificates have be designed and the first awards were made at the June 1937 Commencement to:

John Albert Prouty	—Wildlife Management
Robert Johnston Hodgen, Jr.	—General Horticulture
Arne John Aho	—Dairy Manufactures
Winthrop Whitney Sanderson	—General Horticulture
Elmer Clark Smith	—Vegetable Gardening
Clarence William Benson	—Wildlife Management
Stanley Wyman Bartlett	—General Horticulture
Arthur Wells Hoyt	—Animal Husbandry
Marshall Norman Winkler	—Floriculture

ROLAND H. VERBECK.
Director.

REPORT OF THE LIBRARIAN

The Library system now contains 109,626 volumes, of which about four-fift are in the Goodell Library, and the remainder in forty-six department librarie Four thousand and nine books were added during the year, and 35 discarde making the net gain, 4,174.

The Goodell Library has been kept open 341 days for study and loan of book 16,007 books were loaned for use outside the building, the months of largest bo rowing being: April—1,938, October—1,925, and May—1,891.

The classes of books most borrowed were:—Literature—3,380, Social Sciences- 1,795, Useful Arts or Applied Sciences—1,733, History, including travel an biography—1,558, Pure Sciences—1,310, Fine Arts—1,287, Current Periodicals- 1,245. On the interlibrary loan system, 43 were loaned out, and 131 volum borrowed from other libraries.

There have been few changes in the library during the past year, but the u of the library by students has steadily increased, with more use of the semin room for teaching, and for enjoyment of the Carnegie music collection. With th increase in the number of the staff, it has at last become possible to speed up ou cataloguing, and this has been done, especially in adding many of the volumes the Butterfield gift. Two sets of new bulletin boards have been added, which mak it possible to exhibit the photographs of the Amherst Camera Club, and loa exhibits of affiliated clubs from other parts of the country. Several loan colle tions of pictures from the Art Department of the New York Public Library hav also been exhibited.

B. B. WOOD,
Librarian.

REPORT OF THE DIRECTOR OF PLACEMENT SERVICE

This report covers the work of this department for the school year September t September, because the nature of the work would make it difficult to report on fiscal basis as of November 30.

New developments were twofold. First was the centralizing by executive orde of all Student Aid information and activities in the Placement Office under th Student Aid Committee. This committee of three is made up of one membe each from the following offices: Placement, Dean's and Treasurer's, with th Director of the Placement Service as chairman of this committee. Comprehensiv application forms were developed, calling for financial statement from parent o guardian, financial status of student, yearly budget of expenses, and work experi ence. All applications by students for financial aid (loan, scholarship or employ ment) must be made to this committee. The committee then rates each applican as to eligibility based on need and scholarship. Scholarships are still awarded b the Scholarship Committee and loans are made by the Treasurer of the College

ut information for their assistance and guidance is available through the Place-ent Office. This office maintains a complete record of each student's financial id derived from the College, including scholarships, loans, and income from mployment. Outside sources of aid are also listed where known.

The second new development was the inauguration of a guidance course for tockbridge School freshmen. It has been felt for some time that due to the ressure of large numbers of interviews, (the Stockbridge freshmen, alone number-ng 150-160, are interviewed individually an average of four times before April 1 or a total of about 600 interviews) certain phases of guidance in the personal nterviews had been slighted and neglected. In order to overcome this, and to nlarge the guidance program, a compulsory one-hour a week lecture was scheduled uring the first part of the second semester. The scope of these lectures was broad nd covered the various angles of occupational and personal guidance. The lectures eviewed the various situations which had been experienced by previous students uring placements in order that the freshmen might avoid the pitfalls and take dvantage of the good points as brought out in these past experiences. Much nteresting discussion developed. The benefits of the course were reflected in the uccess of the placement period for that class. The course will be continued as n annual affair.

Plans have been formulated and a somewhat similar course, though even broader n scope, will be instituted for all college freshman men students beginning next all. This guidance course for college freshmen will likewise meet one hour a week ut will continue throughout the entire first semester and probably throughout he entire college year. A similar course for the first year women students has een conducted for some years.

Placement Activities for Senior Men Students in all Fields other than Agriculture or Horticulture

The Placement Service made the following contacts for the placement of senior hen students in all fields other than agriculture and horticulture.

Three hundred fifty-five circular letters were sent graduates selected at random equesting information regarding vacancies and placement prospects. The response rom our alumni unfortunately was not as satisfactory as we had hoped. We arned of three vacancies, one of which we filled by a member of the 1937 class. he second vacancy for a teacher remained unfilled because we had no qualified andidate. The third position in highway construction was also unfilled for want f an interested candidate.

In addition to the contact made by our circular letter to alumni, we mailed short iographical sketches of seniors to approximately 500 alumni and industrial con-erns.

Two hundred industrial concerns were sent personnel letters regarding senior tudents who were definitely interested in career opportunities in their specialized elds. In many cases interviews were solicited, particularly where the concern ould be easily reached.

During the year representatives of ten large corporations visited our campus to nterview prospective senior employees. Six of these representatives selected nen from our senior class. Our efforts to attract more representatives of general ndustry to visit our campus for the purpose of selecting our seniors is beginning o produce results. Many invitations have been sent out during the past year rging these personnel men to come to our campus. Unfortunately, the public n general and the employment directors in particular are not aware of our broad urriculum and of the wide range of occupations to which our graduates aspire. As these individuals become better informed regarding the broad educational raining of our young men, more fields of employment will become available. It s quite apparent that our graduates could better serve the industrial needs of the ommonwealth were courses in engineering and industrial chemistry introduced t our college. We are constantly making contacts either by letter or in person o inform general industry of our broad curriculum and of our students who are ooking forward to careers in the many varied pursuits of life.

During the year 21 permanent placements of men were made as a result of these

combined efforts, and 10 undergraduates were placed in camp and summer hot jobs.

During the past year a series of four lectures was again given to the seniors, c Occupations, Career Opportunities, and Job Finding and Getting. As a means expanding this program it is planned to invite specialists in industrial fields address the seniors on personnel and educational requirements for careers industry.

The statistics for 1937 give the following figures: Graduate or alumni plac ments:—Women, 32; Men: 4 general, 23 agriculture, 60 Stockbridge Schoc A total of 119 as compared with 91 in 1936 or an increase of 28.

Senior placements:—Women, 34; Men: 21 general, 8 agriculture, 53 Stockbrid School. A total of 116 as compared with 104 in 1936 or an increase of 12.

Summer and temporary placements of undergraduates:—Women, 97; Men: 1 general, 12 agriculture, 123 Stockbridge School. A total of 241 as compared wit 228 in 1936 or an increase of 13.

Total placements for 1937: The above totals plus 681 students employed par time, or a total of 1,157 individuals—undergraduates, seniors and graduates- definitely aided in securing employment by this department, an increase of 4 over the year 1936.

There were 241 undergraduates placed on summer jobs in 1937 as compare with 228 in 1936, a slight increase. More effort should be made to aid student in securing summer employment, but this will be difficult until another sta member is added to the department with that part of the work as one of his speci duties. The women students are well cared for and there are jobs in agricultur for the Stockbridge School training students and the few college men that wan summer agricultural work. Summer employment for the great mass of me undergraduates is the weak spot now and will be until we have a larger staff.

Graduates enrolled on the active lists who have contacted members of th department personally or by correspondence:—Women, 32; Men: 47 genera 88 agriculture, 196 Stockbridge School, or a total of 363. Nearly all of this numbe were given leads and in many cases secured employment.

Permanent positions available to graduates and seniors:—Women, 102; Men 47 general, 292 agriculture or a total of 442.

Summer and temporary positions available to undergraduates and Stockbridg School freshmen:—Women, 207; Men: 15 general, 59 agriculture, 123 Stockbridg School Placement Training. A total of 404.

As in the past many openings were not filled due to lack of interested or qualifie candidates.

Part-time Student Employment Program

During the past year the Student Aid Program enabled our students to ear the following sums:

	Students	Amount
Regular college employment (including Special Emergency)	446	$21,175.94
N. Y. A.	235	22,377.44
	681	$43,553.38

The above figures are approximately the same as the earnings of the preceding year. Our student employment program for the current year, however, is restricte because of a 33⅓% reduction of the N. Y. A. allotment. We again emphasiz the great benefits to be derived from an extensive part-time employment program A part-time job is an excellent way in which to remind young men and wome of the importance of dependability, capacity, and attitude towards work. This experience stands the student in good stead when a permanent job opportunity arises. A list of needy students is given to the Placement Officer in charge of the part-time employment program by the chairman of the Student Aid Committe with such recommendations for action as are deemed desirable and the funds fo employment permit.

This committee is performing a very useful and helpful service, eliminating a reat deal of guess-work as to the needs of students on the part of the placement fficer who assigned the execution of the part-time employment program. Also, he work status of every student on the employment program is now definitely stablished in one central office.

A survey of the Occupational Activities of the 1937 men graduates yields the llowing data:

raduate School	42	Biologist	2
eneral Industry	41	Horticulture	2
edical College	16	Landscape	2
airy Industry	8	Law Office	2
arket Gardening	4	Federal Government	1
eneral Farming	3	Number making no response	13
eaching	4	Number unemployed or temporary	21
. S. Army	3	Number in class	164

A survey of the Occupational Activities of the 1937 women graduates yields he following data:

ontinuing Education	21	Attendant, Walter Fernald School	1
eaching	10	Dress Fitter, Department Store	1
arriage	5	Investigator, Welfare Department	1
stitutional Housekeepers	2	Sales work	2
urator of Museum	1	Statistical work in Dept. Store and Insurance Co.	2
nemployed	4	Secretary	1
raining courses for sales work	3	Reference assistant	1
raining courses, telephone company	1	Assistant, Tearoom	1
sychiatric Aides	2	Total	60
ood Production Manager	1		

Placement Activities for Women

The work of the Placement Officer for Women increases each year. This includes ot only the finding of positions, but assembling and making available occupational nformation. The aim is to help the student help herself in finding the right work. esides making information available through literature and many interviews, course is given to freshman women in the College and also in the Stockbridge chool of Agriculture in the study of Occupational Opportunities for Women. gain this year, at the request of the Women's Student Government Association, hree talks on occupational opportunities for June graduates were given to senior omen.

The freshman women in the Stockbridge School of Agriculture are placed for ix months' practical experience required during their first year and field visits re made to supervise their work. Aid in finding permanent positions also is iven to senior women in the Stockbridge School.

Women students are aided in finding self-help positions on the campus, to be aid for from the National Youth Administration, Student Employment Fund r Department Fund. As far as is feasible, consideration is given, in getting work f this sort, to the educational value for the student's own vocational aim. There re always a number of students who cannot meet college expenses unless they arn room and board by working in private families. Positions of this sort are ound for them whenever possible. Besides aiding women students in these ways uring the college year, a large number of girls are assisted in finding summer ositions in order to finance their college course for the coming year.

Junior and senior women are interviewed each fall to find what their occupational lans may be, if any. When summer work is desired by the juniors, as far as ossible work is found with educational value for their future purpose. For seniors, elp is given in finding a position after graduation. Personal data, useful for this urpose, is assembled and brought up to date. References are secured in regard o the students' abilities for the work desired. This material is kept in permanent les, as most of the senior girls wish to take positions after graduation and a number ome back for similar help for some years later.

During this last year there were 102 calls for permanent work, and 207 for emporary work making a total of 309 calls. As is always the case, a good many alls require much special training or experience, so that often there are not enough irls who can qualify. During 1937, 43 girls were placed in permanent positions, 20 in temporary positions, making a total of 163 girls placed.

Stockbridge Placement

Employment opportunities for S. S. A. seniors continued to be quite plentif although we have not returned to conditions such as existed in 1928 and 19 when we were searching for men and not for jobs. This department was instr mental in placing 53 as compared to 52 last year. A much greater number men than usual returned to the home project—28 as compared with 13 in 193

The new Wild Life Management course fared very well for the first crop graduates, 9 of the 10 being employed in some line of work connected with the major. Seven of these are in the Division of Fisheries & Game of the State Co servation Department, three of them with Civil Service ratings.

The number of women students took a decided jump, there being only four 1936 and thirteen in 1937. These were divided as regards majors as follow 1 horticulture, 2 animal husbandry, 10 floriculture. All put in a successful seas due to the fine efforts of Miss Hamlin. For various reasons three did not retu for the second year.

The second placement period for the new Wild Life Management group was decided improvement. Full time employment for the six months was secured f all ten students largely due to the fine cooperation of the State Department Conservation which employed five students.

Emory E. Grayson,
Director.

REPORT OF THE DIRECTOR OF THE EXPERIMENT STATION

The general policy of the Experiment Station Administration is so closel related to and guided by definite research projects that whatever changes occu from year to year are gradual in nature and attract very little attention and cau no particular stir. This is as it should be in an organization where there is adequat vision and a sound foundation. Changes which come in the form of sound an gradual growth are generally indicative of a healthful organism. It is believe that we are undergoing such changes. One of these, and a very significant one, evidenced by the increased recognition given to the economic factors that pla so prominent a part in the interpretation and utilization of results from scientifi investigations. The individual investigator has become gradually more conscio of the desirability and obligation for carrying his studies beyond the so-calle factual and into the applied stage. He is developing greater courage in expressin himself in the interpretation of his results and this is sure to prove of great valu in a field where unbiased opinions are not readily available from any other sourc This development in the Experiment Station is becoming recognized and is bein appreciated and encouraged by those whom we attempt to serve.

The annual report of the Experiment Station, issued regularly as a separat bulletin, is intended to cover in considerable detail the results from research fo the previous year ending November 30th and, therefore, this report will deal onl with generalities as these pertain to policies and new developments.

The work in nutrition, as related to both human and animal well-being, has bee hindered since its inception because of inadequate facilities pending the completio of construction in the nutrition laboratory. Last year's appropriation, however made financial provision to put the entire laboratory into usable condition an this unit will soon be equipped to make a very desirable contribution to the re search and general educational program of the entire College. These facilitie and the qualified personnel available are being recognized by personal and in dustrial interests and, as a result, the demands for special research to serve specifi problems are increasing.

The investigations under the Mrs. Henry Lang Fund have been encouragec by another gift of $5,000 from the same donor through whose generosity the fun was originally established and designated. There are evidences that this suppor is beginning to produce results that may aid in providing a more intelligent approacl in dealing with those so-called deficiency ailments now so commonly recognizec in human nutrition.

Among the poultrymen there is continued interest in the expansion of our acilities so that some of the nutrition problems now confronting that industry ay be given research attention. A special item in the present budget, when pproved, will provide this service which should then be organized as a supplement o the present Feed Control program.

Because of opportunities for expansion through enlarged Bankhead-Jones upport, it is intended to recognize the need for certain weed control and fruit torage studies at the Cranberry Field Station. The urgency of this need is best videnced by the fact that the cranberry growers themselves, through special unds provided through the treasury of the Cape Cod Cranberry Growers' Associa- ion, have attempted to support the preliminary investigations inaugurated in his field. An additional staff member should be provided for that purpose.

The rapid development of interest in enlarged recreational facilities in New England, and especially in Massachusetts, has confronted us with many requests or information regarding the improvement of golf courses, lawns, roadsides, arks, etc. The Massachusetts Greenkeepers' Association has been most active nd also most considerate in these demands. Realizing that the expansion of our ervice is possible only if adequate funds are available, this Association is determined o gain recognition either through an item in our budget or through special legisla- ive action. If adequate financial provision is made available the research in the Experiment Station can easily be expanded to deal with these problems.

The demands of the Arborists for more specific data regarding the culture of hade trees are gradually being met through certain services made available in onjunction with the activities under Dutch Elm Disease Control. Also, the nlarged facilities provided at the Waltham Field Station as a result of additional reenhouse and laboratory space for Nursery Culture which have just become vailable through new construction will serve in that connection.

The Regional Pasture Management Laboratory, established at Pennsylvania State College, which is now fully equipped and manned, is intended to supplement he research of the entire northeastern section of this country. It is sure to play prominent part in promoting a better approach to the evaluation of the manage- nent phases involved in providing more satisfactory forage, a matter so essential o the success of the Massachusetts Dairy Industry.

Of the numerous cooperative investigations under way with several bureaus of he United States Department of Agriculture, the most recent, and in some respects he most interesting, is that dealing with soil erosion and its control. Most of New England, due to natural and economic factors, has developed a type of agri- ulture where pasture and grass lands play such a prominent part that the extreme rosion, quite common in other sections, is rarely in evidence. Nevertheless, the roductivity of our soils is recognized as our most important natural resource nd, therefore, deserving of our best consideration because the future prosperity f this country is very closely related to and dependent upon it.

In recent years cooperation in research has been given a great deal of encourage- ment. To the extent that it remains on a voluntary basis this is very desirable because it has a tendency to overcome some of the limitations of the high degree f specialization that has developed in agricultural research. When cooperation is promoted to the point where it takes on compulsory aspects it loses not only most of its value but may even become a handicap to sound progress. This is especially true when it reaches a stage where conclusions are based upon a com- promise of opinions of the cooperative agencies rather than upon the actual research findings of individual investigators. Projects should not be undertaken on a co-operative basis unless it becomes evident, after careful analysis of all factors involved, that such an approach is desirable or even possible.

F. J. Sievers,
Director.

REPORT OF THE DIRECTOR OF THE EXTENSION SERVICE

There probably has been no year in the history of extension work in Massachusetts when greater progress was made toward our major objectives of improving the income of our rural people and making it possible for them to get more satisfactions in home and community living.

The development of coordinated educational programs for each of the main agricultural commodities of the state has been one of the important accomplishments of the year. Resources of all departments of the college and of cooperating agencies, such as the Agricultural Conservation Program and the Farm Credit Administration, were joined in building long-time educational programs for the cash crop, dairy, poultry, fruit, vegetable, forestry, and cranberry industries. Farmer committees shared in developing these porgrams, and local committees in each county adapted the general programs to local needs and conditions.

More than ever before the Extension Service has aided farmers in developing their own leadership to handle the problems of agriculture. When farmers themselves take the responsibility of leadership and go ahead in developnig and carrying out programs, we may feel certain that our assistance will be effective for a long time to come.

It is an indication of progress that the leadership of farm organizations in Massachusetts today is in the hands of strong and capable men. These farm leaders are taking their responsibilities seriously and are seeing broadly the problems with which they are faced. The fruit growers association has organized a Northeast apple institute to promote the sale of apples. The poultrymen, including turkey producers, have developed organizations to promote the use of their products. Dairymen are giving freely of their time to find answers to the difficult problems before them.

The Agricultural Conservation Program made it necessary for farmers to take leadership if they were to have the program operated in the best interests of themselves and their rural friends and neighbors. As developed during the year, the program has been endorsed by farmers throughout the state and enrolment has passed the 10,000 mark. Increased interest in conservation of the soil has led to the establishment of permanent soil-testing laboratories in two counties and short-term soil clinics in many of our farming communities.

Extension workers have continued their policy of cooperation with instructors in agriculture in high schools and county schools. We are seeking ways of working together still more closely so that we may provide a better service to agriculture.

Forty-five bulletins were published during the year to provide both the farmer and the homemaker with up-to-date information on farm and home problems. Newspapers and radio were widely used in conveying information to the public and we wish to acknowledge the cooperation of these agencies in serving the agriculture of the state.

Women today are recognizing the full significance of home life. They want the home to be a place of contentment and satisfaction in living for the whole family. They seem to realize, more than in the past, that the techniques of housekeeping such as cooking, sewing, home decoration, and the like, are only means to the main objective of building a happy and a harmonious home.

Thus, during the year our home economics workers emphasized assistance to women in the study of their jobs of home-making and in planning to reach larger objectives. They encouraged the development of leadership among women and a study of the fundamental values in community life. They cooperated with local leaders toward solving problems of health, economic welfare, and family relationships.

To reach these goals, many new town and community committees were organized so that an analysis of the needs of the homes and communities may be made and extension programs planned accordingly. These committees are working on such problems as establishing hot lunches for school children, arranging for dental or pre-school clinics with the State Department of Health, and developing social and recreational programs and facilities. More than 4,000 home visits were made in an effort to reach more farm women, mothers of young children, and those unable to attend meetings because of lack of transportation.

Four-H club work is expanding rapidly. Membership now exceeds 19,300 and the number of older club members has shown a substantial increase. In club work we are putting increased emphasis on the problems of older youth and are building programs that will give young men and women enlarged opportunities for the development of leadership and character.

We feel that the young people who have been in 4-H clubs and have received training in leadership can best carry on from that point in service to their communities. Older club members may give leadership to Boy Scouts, Girl Scouts, young men's and young women's organizations. Many are going into adult groups and working on community-wide problems.

This past year saw the completion of a second 4-H club building on the campus of Massachusetts State College to serve as headquarters for camps and other state-wide activities. Leadership-training camps were conducted for conservation leaders, junior leaders, and adult leaders. Camp activities included training in handicrafts and conservation, leader-training through the discussion method, and instruction in project material. The benefits of camp training have been apparent in the improved work of clubs throughout the state.

Massachusetts communities are giving increasing attention to providing creative types of recreation that may be enjoyed by all members of the community rather than those of any particular organization. The Extension Service has cooperated with community leaders by aiding them to develop programs in music, folk dances and singing games, dramatics, crafts, sports, and nature activities. Training schools were held throughout the year so that communities may develop leadership for carrying on their programs on a permanent basis.

WILLARD A. MUNSON,
Director.

REPORT OF THE TREASURER

The financial report of the College for the year ended November 30, 1937.

The appropriation from both State and Federal sources shows an increase over the previous year. A summary of these appropriations, together with the trust funds, gives the following statement:

Dec. 1, 1936	Balance	$249,559.76	
Nov. 30, 1937	Funds available	1,811,672.81	
			$2,061,232.57
Nov. 30, 1937	Expenditures	$1,792,756.44	
Nov. 30, 1937	Reverted to Commonwealth of Massachusetts specials	13,008.92	
	Debit to 1936 Balance, Maintenance	3,780.38	
	Debit to 1936 Balance, Special	568.68	1,810,114.42
Nov. 30, 1937	Balance		$251,118.15

This balance is divided as follows:

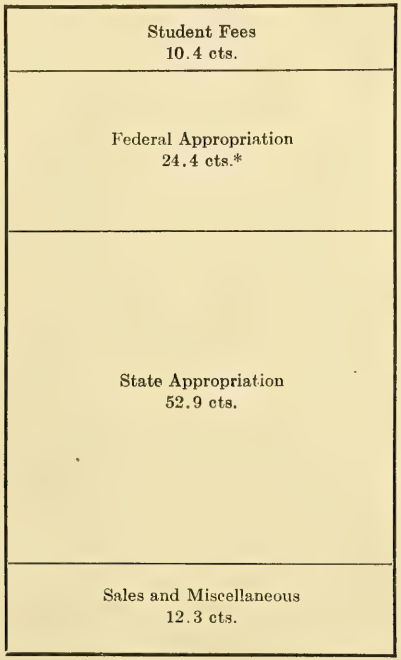
College—current	$50,470.10
College—Specials	19,198.40
Federal	99,442.41
Trust funds	82,007.24
	$251,118.15

You will note that the State appropriation shows a balance of $50,470.10, which is divided as follows:

Balance of appropriation for Fuel which is contracted on a yearly basis from April 1 to March 31	$23,819.53
Amount set aside to cover outstanding liabilities at November 30	1,112.14

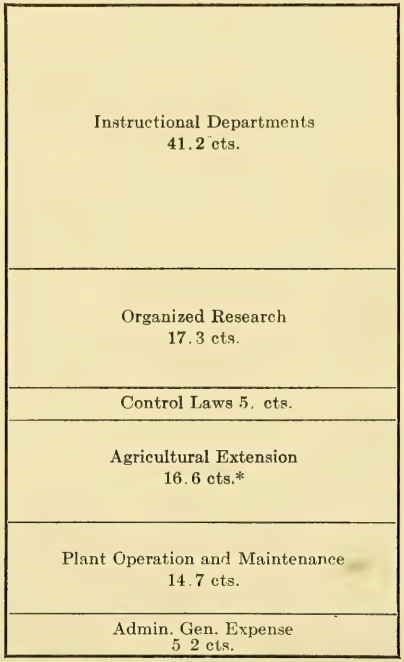
THE OPERATING DOLLAR YEAR ENDED NOVEMBER 30, 1937

How the Dollar was Provided

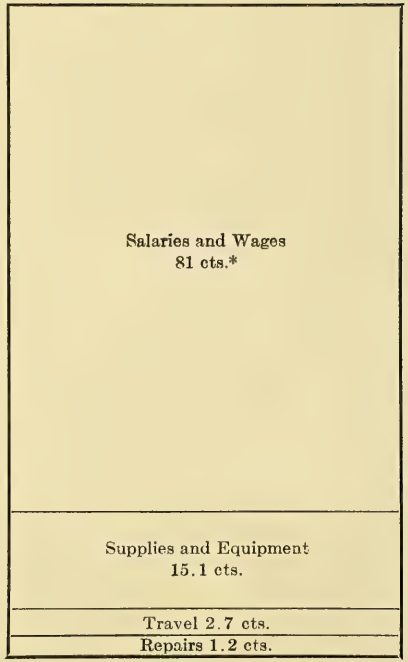


How the Dollar was Spent

By Function



By Object



* 3.4 cents of each dollar provided and spent must be used to help pay salaries of county agents who are not directly connected with the work of the College.

mount from Personal Service of Extension Service budget reverting to State Treasurer due to an arrangement between the Budget Commissioner and the Extension Director, this balance accumulating as between State and Federal funds because of different fiscal years 20,223.52
alance of current appropriation reverting to State 5,314.91

Total $50,470.10

February 1, 1937 arrangements were made with the Springfield Safe Deposit nd Trust Company to handle our endowment funds under agency control agreeent. This was entered into and these funds have been under their supervision uring this period. The cost for this service was $105.97. The total amount of ur endowment fund at par value is $155,050. Our return from this investment as $8,287.88 The amount of this interest gives a 4.56% return on the total cost our securities. The market value of these securities December 1, 1937 was 134,725.70. This is a decrease of almost 10% as compared to a year ago when he value was $149,473.73. No additional endowments have been received during he past year.

During the year there were 162 loans made to students aggregating $12,455.50, nd 98 scholarships granted, aggregating $2,770.00.

Our new method of valuing our inventory of buildings and equipment is proving tisfactory. Our total inventory for the year ended November 30, 1937 shows 4,249,952.86 which is an increase of $79,608.73 over the previous year, notwithanding the fact that we suffered a loss by fire of $16,032.00 due to the burning the Young Stock Barn, with equipment.

The receipts of the College that were paid to the State Treasurer were $320,201.71 hich is an increase of $12,609.11 over the previous year.

A chart showing the distribution of the dollar year is attached.

An examination of the accounts of the Institution for the year ended November 0, 1936 was made under the direction of the State Auditor.

A complete statement of all receipts and expenditures follows.

FRED C. KENNEY,
Treasurer.

CURRENT RECEIPTS AND DISBURSEMENTS
Year Ended November 30, 1937

eceipts, excluding State and Federal grants for plant additions:			
Educational and general:			
Student Fees		$146,665.32*	
Public Appropriations:			
State	$1,066,109.51		
Federal regular	332,074.48		
		1,398,183.99	
Endowment Income and Smith Hughes Fund		6,564.99	
Sales and Service of educational depts. and other miscellaneous sources		60,688.87*	
Control Law fees		72,370.28*	
Total Educational and General			$1,684,473.45
Auxiliary Enterprises:			
Rent from dormitories and private dwellings		38,099.25	
Student hospital fees		613.00	
Miscellaneous		1,764.99	
Total Auxiliary Enterprises			40,477.24*
Total Receipts			$1,724,950.69
)isbursements:			
Educational and general (including Auxiliary Enterprises):			
General administration and expense	$72,395.42		
Instruction	580,429.05		
Organized Research	243,197.79		
Control Laws	70,647.12		
Agricultural Extension	234,675.18		
Operation and maintenance of Physical Plant	207,329.02		
Total Educational and General		$1,408,673.58	

Remittances to State Treasurer:		
Income from Student Fees, Sales and Service and Auxiliary Enterprises	$320,201.71*	
Refunds of Maintenance charges	684.62	
Total	$320,886.33	
Total Expenditures		$1,729,559.4
Excess of Expenditures over Receipts**		$4,609.2

*These receipts totalling $320,201.71 revert to the Treasurer of the Commonwealth and the Colle does not have the use of these funds.

**As explained elsewhere in this report, this excess of expenditures over receipts is possible on because the fiscal year of the Federal government does not coincide with the fiscal year of the Commo wealth.

SUMMARY OF FINANCIAL REPORT FOR 1937

Current Funds

I. State Funds		
a. Appropriation for 1937		$1,107,375.0
b. Expended to November 30, 1937		1,056,904.8
c. Outstanding Liabilities for which funds are reserved		24,931.6
d. Balance reverting to State Treasurer at November 30, 1937		$25,538.4
II. Federal Funds		
a. Appropriation for 1937		$338,639.4
b. Expended to November 30, 1937		343,248.6
c. Excess of expenditures over receipts		4,609.2

Inasmuch as the Federal fiscal year ends at June 30, a balance always exists in these funds at the end of the State fiscal year. The excess of expenditures over receipts during the State fiscal year reduced the balance from $104,051.58 in 1936 to $99,442.41 in 1937.

III. Trust Funds		
a. Receipts		$308,370.0
b. Expenditures		300,857.9
c. Excess of receipts over expenditures		$7,512.1

Summary of Current Funds

I. Balance Dec. 1, 1936			
1. For 1936 Liabilities		$8,519.99	
2. Federal funds		104,051.63	
3. Trust funds		74,495.13	
			$187,066.7
Receipts for year			1,754,384.4
Total			$1,941,451.2
II. Expenditures for year			1,709,531.4
III. Balance November 30, 1937			$231,919.7
1936 State fund liability		$24,931.67	
State funds reverting to State Treasurer		25,538.43	
Federal funds		99,442.41	
Trust funds		82,007.24	
		$231,919.75	

Statement of Special Appropriations

A. Appropriations			
P.W.A.			
1. Renovation of Steam and Electrical lines (Balance from 1936)		$240.00	
2. Men's Dormitory (Balance from 1936)		403.06	
3. Goodell Library		12,131.46	
4. The Chapel		45,288.32	
			58,062.84
Special State			
a. Capital Improvements			
1. Construction Highway (1936 balance plus 1937 additional)		$1,576.31	
2. 1935 Tennis Courts		2,355.71	
3. Completion Biology Laboratory		8,500.00	
4. Campus Electric System		4,000.00	
5. Equipment for Gas Plant		3,200.00	
6. Fire Protection		7,500.00	
7. Propagation House, Waltham		8,500.00	
8. Tiling Ice Cream Laboratory		4,000.00	
9. Furnishing the Chapel		4,500.00	
Total		$44,132.02	

Other Purposes		
10. 1935 Dutch Elm Disease (1936 balance)	$237.41	
11. 1937 Dutch Elm Disease	5,000.00	
12. 1937 Emergency Needs	3,000.00	
13. Aid to Certain Students	5,000.00	
Total	$13,237.41	57,369.43
Total Special Appropriations		$115,432.27
EXPENDITURES		
P.W.A.	$44,883.22	
Special State		
For Capital Improvements	26,848.19	
For Other Purposes	11,493.54	
		83,224.95
Unexpended balances of 1936 finished projects returned to State Treasurer		13,008.92
Total Expenditures		$96,233.87
BALANCE CARRIED FORWARD FOR 1938 CONSTRUCTION		$19,198.40
		$115,432.27

DETAIL STATEMENT OF FEDERAL AND STATE CREDITS

	Other Funds	State Funds	Totals
lance December 1, 1936	$104,051.63	–	$104,051.63
llege receipts from students and others	–	–	158,441.56
Tuition	–	$117,964.32	–
Room Rent and House Rent	–	38,099.25	–
Other charges to students	–	2,377.99	–
epartmental sales	–	–	52,789.46
Products	–	47,969.88	–
Miscellaneous	–	4,819.58	–
periment Station	–	–	7,335.66
Miscellaneous	–	944.95	–
Cranberry	–	5,242.94	–
Station	–	1,147.77	–
tension Service	–	–	244.98
Correspondence	–	128.50	–
Miscellaneous	–	116.48	–
ort Courses	–	–	28,701.00
Student fees	–	27,675.00	–
Winter School	–	1,026.00	–
altham Field Station	–	–	318.77
Produce	–	318.77	–
ed Law	–	23,060.10	23,060.10
rtilizer Law	–	15,372.19	15,372.19
iry Law	–	1,062.98	1,062.98
ultry Disease Law	–	25,285.72	25,285.72
ed Control Law	–	103.30	103.30
iry Cattle Certification	–	7,485.99	7,485.99
reasurer of the Commonwealth	–	–	875,922.10
Maintenance	–	854,161.24	–
Special Appropriation	–	15,195.87	–
Endowment	4,434.99	–	–
Smith Hughes Fund	2,130.00	–	–
ederal Government*	–	–	332,074.48
College	95,279.79	–	–
Experiment Station	101,363.86	–	–
Extension Service	135,430.83	–	–
ills paid by State Treasurer	–	279,977.35	279,977.35
efunds account of previous year	–	185.58	185.58
	$442,691.10	$1,469,721.75	$1,912,412.85
Federal			
Adams Fund of 1906	$15,000.00	–	–
Add. Federal Co-op. of 1930	7,750.00	–	–
Bankhead Jones 1935	120,320.97	–	–
Capper Ketchum 1928	23,869.84	–	–
Federal Smith Lever 1914	49,500.34	–	–
Hatch Fund of 1887	15,000.00		–
Land Grant of 1862	7,300 00	–	–
Morrill Fund of 1890	16,666.67	–	–
Nelson Fund of 1907	16,666.66	–	–
Purnell Fund of 1925	60,000.00	–	–
	$332,074.48	–	–

DETAIL STATEMENT OF FEDERAL AND STATE PAYMENTS

	Other Funds	State Funds	Totals
College Expenses	–	–	$788,712.5
Personal Service	$91,848.78	$536,552.19	
Maintenance	-	160,311.61	
Replacements	-	6,685.42	6,685.4
Experiment Station	–	–	229,868.1
Personal Service	96,064.54	106,463.96	
Maintenance	5,404.37	21,935 31	
Extension Service	–	–	234,675.1
Personal Service	137,183.93	56,976.48	
Maintenance	10,026.57	30,488.20	
Short Courses	–	–	63,299.3
Personal Service	2,720.50	51,701.53	
Maintenance	-	8,877.33	
Waltham Field Station	–	–	13,329.6
Personal Service	–	4,920.02	
Maintenance	–	8,409.59	
Trustees Travel	–	485.21	485.2
Printing Reports	–	970.92	970.9
Feed Law	–	11,223.87	11,223.8
Fertilizer Law	–	15,201.55	15,201.5
Dairy Law	–	803.23	803.2
Poultry Disease Law	–	29,695.75	29,695.7
Seed Control Law	-	6,143.56	6,143.5
Dairy Cattle Certification	-	7,579.16	7,579.1
Special Appropriations	–	–	83,224.9
1935 and 1937 Construction Highways	–	1,573.91	
1935 Dutch Elm Disease	–	3.01	
1935 Tennis Courts	–	2.35	
P.W.A. Chapel Library	–	44,883.22	
1937 Emergency Needs	–	1,490.53	
1937 Completion Biological Lab.	–	2,605.12	
1937 Campus Electric System	–	2,678.66	
1937 Dutch Elm Disease	–	5,000.00	
1937 Equipment for Gas Plant	–	2,718.87	
1937 Fire Protection	–	3,090.32	
1937 Propagation House, Waltham	–	7,277.13	
1937 Tiling Ice Cream Lab.	–	3,965.82	
1937 Aid to Certain Students	–	5,000.00	
1937 Furnishing Library Bldg.	–	2,936.01	
Income	-	320,201.71	320,201.7
Refunds transferred to State Treasurer on account of current operations		684.62	684.6
Refunds transferred to State Treasurer on account of previous year	–	185.58	185.5
Balance on hand	99,442.41	–	99,442.4
	$442,691.10	$1,469,721.75	$1,912,412.8

Budget for State Appropriation for Current Expenses for Year Ende November 30, 1937

	Appropriation	Current Year	Balance
Personal Services:			
Administration	$57,325.00	$57,810.88	–$485.8
Instruction	282,000.00	277,070.01	4,929.9
Short Courses	53,700.00	51,701.53	1,998.
Extension Service	77,200.00	56,976.48	20,223.
Experiment Station	111,400.00	106,463.96	4,936.
Control Service:			
Fertilizer Law	12,650.00	12,690.01	–40.
Poultry Disease Law	23,300.00	22,571.49	728.
Milk Testing Law	600.00	541.60	58.
Commercial Feedstuffs	10,750.00	10,175.38	574.
Seed Law	5.500.00	5,025.10	474.
Waltham Field Station	7,000.00	4,920.02	2,079.
Departmental Maintenance	41,500.00	42,418.21	–918.
Farm Maintenance	33,500.00	33,924.47	–424.
Operating Maintenance	120,800.00	99,658.29	–4,528.
Repairs Ordinary	–	25,670.33	
Dairy Cattle Cert.	5,700.00	5,708.68	–8
Total Personal Service	$842,925.00	$813,326.44	$29,598.
Travel	$4,300.00	$4,720.01	–$420.
Supplies and Equipment	94,177.89	92,802.20	1,375.
Short Courses:			
Travel	1,000.00	1,104.28	–104.
Supplies and Equipment	8,001.47	7,773.05	228
Extension Service:			
Travel	16,500.00	14,814.16	1,685
Supplies and Equipment	14,500.00	15,674.04	–1,174
Experiment Station:			
Travel	2,300.00	2,164.46	135
Supplies and Equipment	15,029.89	19,770.85	–4,740

	Appropriation	Current Year	Balances
ertilizer Control Law:			
Travel	850.00	778.57	71.43
Supplies and Equipment	2,505.56	1,732.97	772.59
oultry Disease:			
Travel	2,000.00	2,341.03	-341.03
Supplies and Equipment	4,500.00	4,783.23	-283.23
Milk-testing Insp. Law:			
Travel	300.00	146.94	153.06
Supplies and Equipment	100.00	114.69	-14.69
ommercial Feedstuls:			
Travel	500.00	258.24	241.76
Supplies and Equipment	1,400.00	790.25	609.75
ed Law:			
Travel	-	112.00	-112.00
Supplies and Equipment	1,400.00	1,006.46	393.54
Waltham Field Station	6,530.90	8,409.59	-1,878.69
eat, Light and Power	69,112.95	45,293.42	23,819.53
arm	-	-231.57	231.57
epairs Ordinary	16,158.53	17,727.55	-1,569.02
eplacements	7,000.00	6,685.42	314.58
rustees Expenses	1,200.00	485.21	714.79
rinting Reports	1,300.00	970.92	329.08
airy Cattle Cert.—Travel	2,002.80	1,655.38	347.42
airy Cattle Cert.—Supplies	300.00	215.10	84.90
Sub-total	272,969.99	252,098.45	20,871.54
Total Maintenance Appropriation	$1,115,894.99	$1,065,424.89	$50,470.10

udget for Special Appropriations Granted by the State for the Year Ended November 30, 1937

	Appropriation	Expenditures	Balance
.W.A. Renovation Steam and Elec. Lines	$240.00	-	$240.00*
.W.A. Men's Dormitory	403.06	-	403.06*
.W.A. Library	12 131.46	-	12 131.46*
935 Construction, Highway (1937)	1.576.31	$1 573.91	2.40
935 Dutch Elm Disease	237.41	3.01	234.40*
935 Tennis Courts	2.355.71	2.35	2 353.36
.W.A. Chapel Library	45.288.32	44 883.22	405.10
937 Emergency Needs	3.000.00	1 490.53	1 509.47
937 Completion Biological Laboratory	8,500.00	2,605.12	5,894.88
937 Campus Elec. System	4,000.00	2,678.66	1,321.34
937 Dutch Elm Disease	5,000.00	5,000.00	-
937 Equipment for Gas Plant	3,200.00	2,718.87	481.13
937 Fire Protection	7,500.00	3,090.32	4,409.68
937 Propagation House, Waltham Field Sta.	8,500.00	7,277.13	1,222.87
937 Tiling Ice Cream Lab.	4,000.00	3,965.82	34.18
937 Aid to Certain Students	5,000.00	5,000.00	-
937 Furnishing Library Building	4,500.00	2,936.01	1,563.99
	$115,432.27	$83,224.95	$32,207.32
			Less 13,008.92*
			$19,198.40

*Reverted to State.

COMPARATIVE RECEIPTS OF STUDENT FEES, SALES AND SERVICE OF VARIOUS DEPARTMENTS OF THE COLLEGE FOR THREE YEARS ENDING NOVEMBER 30,

N.B. These receipts revert to the Treasurer of the Commonwealth and the College does not have the use of these funds.

	1935	1936	1937
Charges to students	$143,160.68	$150,123.40	$154,810.06
Personal Service and Retirement	805.45	1,057.43	1,358.27
Sales	52,614.44	54,591.66	51,431.19
Miscellaneous	4,966.12	3,467.66	3,631.50
Total	$201,546.69	$209,240.15	$211,231.02
Experiment Station	$3,997.80	$9,669.99	$7,335.66
Laws and Service	60,578.66	62,247.40	72,370.28
Total	$ 64,576.46	$ 71,917.39	$ 79,705.94
Extension Service	$230.33	$341.61	$244.98
Short Courses	23,358.50	25,701.00	28,701.00
Waltham Field Station	331.12	392.45	318.77
Grand Total	$290,043.10	$307,592.60	$320,201.71

COMPARATIVE EXPENDITURES FROM STATE APPROPRIATIONS FO MAINTENANCE EXPENSES FOR THREE YEARS ENDING NOVEMBER 30TH

	1935	1936	1937
Personal Service:			
Administration	$50,751.06	$56,133.38	$57,810.
Instruction	261,746.53	270,976.65	277,070.
Maintenance:			
Departmental	39,525.76	39,327.90	42,418.
Farm	33,816.43	33,999.95	33,924.
Operating	88,686.92	96,554.17	99,658.
Repairs	25,104.71	25,098.67	25,670.
Replacements	–	–	
Travel	5,177.79	4,300.77	4,720.
Maintenance:			
Supplies and Equipment	91,363.86	89,866.03	92,802.
Heat, Light and Power	61,299.65	61,922.33	45,293.
Farm	2,092.08	–1,464.55	–231.
Repairs	15,318.82	16,875.18	17,727.
Replacements	5,575.40	7,108.53	6,685.
Printing Reports	1,077.67	1,347.36	970.
Trustees Expenses	634.84	657.41	485.
Total	$682,171.52	$702,703.78	$705,005.
Experiment Station:			
Personal Service	$90,632 28	$102,036.74	$106,463.
Travel	2,023.86	2,314.56	2,164.
Supplies and Equipment	18,539.04	22,247.46	19,770.
	$111,195.18	$126,598.76	$128,399.
Dairy Law:			
Personal Service	$495.00	$546.25	$541.
Travel	185.37	123.16	146.
Supplies and Equipment	60.73	95.16	114.
Sub-total	$741.10	$764.57	$803.
Feed Law:			
Personal Service	$9,518.13	$9,986.63	$10,175.
Travel	299.67	316.22	258.
Supplies and Equipment	1,593.23	1,060.69	790.
Sub-total	$11,411.03	$11,363.54	$11,223.
Fertilizer Law:			
Personal Service	$11,661.89	$12,024.75	$12,690.
Travel	781.00	791.71	778.
Supplies and Equipment	2,589.92	2,582.49	1,732.
	$15,032.81	$15,398.95	$15,201.
Poultry Law:			
Personal Service	$19,144.53	$20,255.22	$22,571.
Travel	1,674.65	1,758.73	2,341.
Supplies and Equipment	2,878.77	3,208.55	4,783.
Sub-total	$23,697.95	$25,222.50	$29,695.
Seed Law:			
Personal Service	$4,151.83	$5,377.86	$5,025.
Travel	–	67.80	112.
Supplies and Equipment	2,067.99	823.59	1,006.
Sub-total	$6,219.82	$6,269.25	$6,143.
Dairy Cattle Certification:			
Personal Service	–	$2,702.55	$5,708.
Travel	–	833.49	1,655.
Supplies and Equipment	–	76.13	215.
Sub-total	–	$3,612.17	$7,579.
Grand Total Laws	$57,102.71	$62,630.98	$70,647.
Extension Service:			
Personal Service	$64,020.67	$72,605.22	$56,976.
Travel	16,555.94	14,674.31	14,814.
Supplies and Equipment	14,234.64	15,173.14	15,674.
Total	$94,811.25	$102,452.67	$87,464.
Short Courses:			
Personal Service	$49,345.58	$51,413.98	$51,701.
Travel	795.57	1,035.35	1,104.
Supplies and Equipment	7,172.53	7,691.82	7,773.
Total	$57,313.68	$60,141.15	$60,578.

	1935	1936	1937
Waltham Field Station:			
Personal Service	$6,896.30	$5,814 78	$4,920.02
Maintenance	5,164.41	5,903.47	8,409.59
Total	$12,060.71	$11,718.25	$13,329.61
Grand Totals	$1,014,655.05	$1,066,245.59	$1,065,424.89

Summary of Inventory

Summary of Inventory

Land (estimated value)				$185,815.54
Buildings:				
Main College Buildings:				
Classroom, research, & administration		$1,454,435.24		
General		344,000.00		
Service buildings		156,733.00		
Farm buildings and sheds		85,001.00		
Waltham Field Station		58,400.00		
Residential properties		50,500.00		
Auxiliary and activities buildings		479,850.00		
Total			$2,628,919.24	
Experiment Station Buildings:				
For research and administration		$61,500.00		
Service buildings		11,525.00		
Cranberry Experimental Laboratory at Wareham		8,005.00		
Poultry Experimental Laboratory—Tillson Farm		12,900.00		
Residential properties		10,000.00		
Total			103,930.00	
Total Buildings				2,732,849.24
Equipment and Supplies:				
Equipment	College	Experiment Station		
General				
Furniture and Fixtures	$270,012.26	$19,052.72		
Machinery and tools	219,056.53	28,666.77		
Lines, mains, walks	161,662.44	–		
Totals	$650,731.23	$47,719.49		
Classroom				
Apparatus, equipment & collections	$345,188.15	$77,081.17		
Totals	$995,919.38	$124,800.66	$1,120,720.04	
Livestock and Poultry	$36,248.94	$3,595.15	$39,844.09	
Supplies				
General	$43,073.35	$3,571.55		
Classroom	56,853.30	41,707.73		
Farm	9,382.52	1,336.17		
Merchandise, including containers, etc.	9,786.69	5,012.64		
Totals	$119,095.86	$51,628.09	$170,723.95	
Total Equipment and Supplies				1,331,288.08
Total Inventory				$4,249,952.86
College Estate (area)				734.59
Cranberry Station, Wareham (area)				28.36
Mt. Toby Demonstration Forest (area)				755.27
Rifle Range (area)				46.20
Pelham Quarry (area)				.50
Waltham Field Station, Waltham (area)				55.39
				1,620.31

STATEMENT OF INCOME AND EXPENSE—COLLEGE STORE
For the Year Ended August 31, 1937

	Text Books	Supplies	Luncheonette	Total
Income:				
Sales	$24,068.57	$15,014.88	$8,775.57	$47,859.0
Cost of Goods Sold:				
Inventory Aug. 31, 1936	721.54	1,714.24	155.31	2,591.0
Purchases	20,909.67	12,694.74	6,219.15	39,823.5
Total	$21,631.21	14,408.98	6,374.46	42,414.6
Inventory Aug. 31, 1937	675.40	2,064.56	325.87	3,065.8
Net	$20,955.81	$12,344.42	$6,048.59	$39,348.8
Gross Profit	3,112.76	2,670.46	2,726.98	8,510.2
	$24,068.57	$15,014.88	$8,775.57	$47,859.0
Expenses:				
Salaries				$2,940.0
Labor				1,826.0
Rent				500.0
Insurance				106.3
Repairs				203.8
Office				69.1
Advertising				50.6
Telephone				18.8
Total Expense				$5,714.8
Net Profit before Depreciation				2,795.3
Depreciation				478.0
Net Profit for Year				$2,317.3

STATEMENT OF INCOME AND EXPENSE—DINING HALL
For the Year Ended November 30, 1937

Income:			
Board—less refunds		$74,359.53	
Cafeteria		10,904.70	
Special Service		2,250.03	
Sale of Provisions		1,006.48	
Miscellaneous		357.90	
Gross Sales			$88,878.6
Cost of Goods Sold:			
Inventory—Dec. 1, 1936		$3,454.32	
Purchase of food		51,434.72	
Total		$54,889.04	
Less—Inventory Nov. 30, 1937		3,433.60	
Net Cost of Goods Sold (See Schedule attached)			$51,455.4
Gross Profit			$37,423.2
Expense:			
Salary and wages		$27,967.25	
Rent		3,000.00	
Fuel		445.98	
Laundry		1,207.01	
Supplies and Equipment:			
Repairs and parts	$913.15		
China, glassware and silver	240.86		
Linen	108.45		
Kettles and cans	132.05		
Janitor and other supplies	1,302.45		
		2,696.96	
Office expense:			
Stationery and supplies	92.65		
Telephone	45.40		
		138.05	
Insurance		153.60	
Total Expense			$35,608.8
Net Profit			$1,814.3
Purchase of new equipment			1,271.2
Net			$543.1

SUMMARY OF ENDOWMENT FUNDS

Name and Description of Fund	Fund Balance 11/30/37	Income Balance 12/1/36	Income for Year	Expenditures for Year	Income Balance 11/30/37
ome Designated for General Purposes:					
Burnham Emergency Fund	$7,557.49	$189.30	$381.39	$332.56	$238.13
William R. Sessions Fund	5,000.00	166.13	203.79	275.19	94.73
William Wheeler Fund	10,000.00	86.99	312.50	266.66	132.83
Total	$22,557.49	$442.42	$897.68	$874.41	$465.69
ome Designated for Restricted Purposes:					
cholarships, Loans and Prizes					
Alvord Dairy Scholarship—Scholarships	$4,000.00	$605.75	$215.25	$3.67	$817.33
D. K. Bangs Fund—Loans	7,070.79	9,650.82	508.72	7.57	10,151.97
F. G. Crane Fund—Scholarships	25,250.00	1,714.75	2,412.06	1,307.26	2,819.55
J. D. W. French Fund, Scholarships, loans, prizes and judging team expenses	10,000.00	639.52	640.17	780.47	499.22
Gassett Scholarship Fund—Scholarships	1,500.00	210.21	54.04	53.93	210.32
Charles A. Gleason Fund—Scholarships and loans	5,000.00	860.16	285.76	618.59	527.33
Grinnell Prize Fund—Prizes	1,000.00	297.28	6.39	50.93	252.74
Clarence C. Hardy Scholarship Fund—Scholarship	82.49	3.05	2.47	–	5.52
Porter L. Newton Fund—Scholarships	23,411.33	869.27	821.88	1,076.54	614.61
Betsey C. Pinkerton Fund—Scholarships	4,500.00	106.86	225.00	141.13	190.73
Mary Robinson Fund—Scholarships	1,550.00	319.28	13.02	2.92	329.38
Betty Steinbugler Fund—Prizes	200.00	.13	6.00	6.00	.13
Whiting Street Scholarship Fund—Scholarships	2,000.00	277.69	72.50	1.85	348.34
Helen A. Whittier Scholarship Fund—Scholarships	3,193.45	90.30	198.33	154.30	134.33
Total	$88,758.06	$15,645.07	$5,461.59	$4,205.16	$16,901.50
scellaneous Purposes					
George H. Barber Fund—General Athletics	5,000.00	803.00	257.13	14.59	1,045.54
John C. Cutter Fund—Books on Hygiene	1,000.00	39.12	27.50	22.71	43.91
Endowed Labor Fund—For Student Labor	9,000.00	853.76	460.38	37.38	1,276.76
Hills Fund—To establish and maintain a botanic garden	16,114.75	193.01	707.43	537.56	362.88
Library Fund—Books for Library	10,375.52	25.79	398.31	346.65	77.45
Robert F. Pomeroy Library Fund—Books for Horticulture and Landscape Architecture	1,500.00	69.15	75.00	37.59	106.56
Alan Leon Pond Memorial Fund—General Athletics	744.78	11.16	29.77	23.65	17.28
Total—Miscel.	$43,735.05	$1,994.99	$1,955.52	$1,020.13	$2,930.38
tal Income Designated for Restricted Purposes	132,493.11	17,640.06	7,417.11	5,225.29	19,831.88
and Total	$155,050.60	$18,082.48	$8,314.79	$6,099.70	$20,297.57

OPERATION OF STUDENT LOAN FUNDS

	Loans Outstanding Dec. 1, 1936	Loans Made 1936–1937	Loans Paid 1936–1937	Loans Outstanding Nov. 30, 1937
K. Banks Fund	$5,074.54	$8,939.50	$8,630.71	$5,383.33 (a)
harles A. Gleason Fund	408.00	–	40.00	368.00 (a)
assachusetts State Club	350.00	–	50.00	300.00 (b)
H Club for Boys	325.00	265.00	15.00	575.00 (b)
H Club for Girls	–	–	–	– (b)
ncent Goldthwait Loan Fund	4,138.38	1,405.00	2,230.68	3,312.70 (b)
tta Agricultural Loan Fund	2,833.50	1,846.00	3,262.00	1,417.50 (c)
	$13,129.42	$12,455.50	$14,228.39	$11,356.53

(a) Income from fund used for loans.
(b) Principal and income used for loans.
(c) Fund under direction of Trustees of Lotta Agricultural Loan Fund, loans handled through the ollege.

INVESTMENTS
November 30, 1937

Name	Interest Rate	Par Value or number of shares	Cost	Mark Valu
Amherst Savings Bank	3½	$4,185.60	$4,185.60	$4,18
Armour and Company due 1957	4	5,000.00	4,950.00	4,29
Bethlehem Steel due 1966	3¾	2,000.00	1,897.92	1,85
Boston and Albany stock		4	400.00	40
Carolina Power and Light due 1956	5	3,000.00	2,798.04	2,76
Central Pacific First due 1949	4	2,000.00	1,890.56	1,91
Cities Service Power & Light due 1949	5½	1,000.00	930.00	55
Cities Service Power & Light due 1952	5½	3,000.00	2,940.00	1,63
Cleveland Union Terminal due 1977	4½	3,000.00	2,768.04	2,71
Columbus Venetian Stevens Bldg.		12	588.00	12
Columbus Venetian Stevens Bldg. due 1955	5	2,400.00	2,352.00	48
Community Public Service stock		50	2,475.00	1,00
Community Public Service due 1960	5	2,500.00	2,500.00	2,39
Florida Power & Light Co. due 1954	5	5,000.00	4,875.00	4,31
Gatineau Power due 1956	5	1,000.00	927.50	1,02
Great Northern Railway Co. due 1967	3¾	5,000.00	4,875.00	3,78
Indiana Hydro Electric Power due 1958	5	1,500.00	1,477.50	1,18
Indianapolis Water Works Securities due 1958	5	5,000.00	4,962.50	4,25
Illinois Power & Light Corp due 1956	5	4,000.00	3,840.00	3,54
Illinois Power & Light Corp. due 1954	5½	5,000.00	5,137.50	4,57
Illinois Power & Light Corp. due 1953	6	6,000.00	5,960.00	5,88
Monongahela West Penn Pub. Ser. due 1960	4½	5,000.00	5,000.00	5,16
New England Power Assoc. due 1954	5½	5,000.00	4,900.00	4,23
New York Central due 1998	4	1,000.00	965.00	81
New York Central stock		22	2,200.00	41
Penn Power and Light due 1981	4½	3,000.00	3,031.02	3,03
Pennsylvania Co. due 1963	4	2,000.00	2,005.42	1,94
Prudence Bonds Corp. due 1935	5½	1,915.00	1,915.00	68
Prudence Company due 1961	5½	3,850 00	3,820.00	2,23
Puget Sound Power & Light due 1949	5½	5,000.00	5,050.00	3,50
Republic Steel Gen. Mortgage due 1956	4½	2,000.00	1,645.42	1,59
Scranton Spring Brook Water Ser. due 1967	5	10,000.00	9,450.00	7,70
Texas Electric Ser. due 1960	5	3,000.00	2,910.00	2,86
Theta Chi Corp. of Theta Chi Fraternity due 1942	5	12,000.00	12,000.00	12,00
Toledo Edison Co. due 1962	5	1,000.00	941.25	1,08
United States Treasury due 1949	3⅛	10,000.00	9,993.63	10,54
United States Treasury due 1954	2¾	16,000.00	16,185.00	16,09
Wichita Water Co. due 1960	5	4,000.00	3,800.00	4,16
Wilson & Company First Mort. due 1955	4	2,000.00	1,945.42	1,87
Youngstown Sheet & Tube due 1961	4	2,000.00	1,935.42	1,93
Totals		$155,050.60	$152,422.74	$134,72

Financial statement verified.
Approved.

Geo. E. Murphy,
Comptroller

STATISTICS

Table I.—New Appointments

A. Administrative Departments

Junior Clerk and Stenographer: Marion K. Alger.
Junior Clerk and Stenographer: Gertrude M. Kelley.
Assistant College Editor: Joseph Warner, Jr., A.B., Amherst College, 1934.

B. Academic Departments

Assistant Professor of Agricultural Engineering: Allen E. Andersen, A.B., University of Nebraska, 1923; M.A., 1924; Ph.D., Harvard, 1934.
Laboratory Assistant in Forestry: Ralph A. Arnold, B.S., Massachusetts State College, 1936.
Instructor in Physical Education: Kathleen Callahan, A.B., West Virginia University, 1929.
Instructor in Home Economics: Mrs. Gladys M. Cook, B.S., Battle Creek College, 1934; M.S., Massachusetts State College, 1936.
Junior Clerk and Stenographer, Goodell Library: Marion L. Dean, A.B., DePauw University, 1932.
Instructor in English: Clyde W. Dow, B.L.I., Emerson College, 1931; M.S., Massachusetts State College, 1937.
Junior Library Assistant: Lillian P. Hatch, B.S., Simmons College, 1935.
Instructor in Agricultural Economics: Joseph F. Hauck, B.S., Rutgers College, 1936; M.S., 1937.
Assistant Professor of Political Economy: Charles J. Rohr, Ph.D., Johns Hopkins University, 1931.
Instructor in Chemistry: Nelson P. Stevens, B.S., Massachusetts State College, 1935; M.S., 1937.
Laboratory Assistant in Chemistry: John L. Sullivan, B.S., College of the Holy Cross, 1936; M.S., 1937.
Assistant Professor of Hygiene: Margaret R. Thoroman, A.B., Indiana University, 1932; M.D., 1935.
Professor of Nature Education: William G. Vinal, B.S., Harvard, 1906; A.M., 1907; Ph.D., Brown, 1922.

C. Extension Service

Junior Clerk and Stenographer in Agronomy: Elizabeth Petcen.

D. Experiment Station

Technical Assistant in Seed Control: Jessie L. Anderson.
Laboratory Assistant, Waltham Field Station: Michael E. Bemben.
Laboratory Assistant in Agricultural Economics: Malcolm B. Butler, B.S., Massachusetts State College, 1937.
Junior Clerk and Stenographer, Seed Control: May J. Honney.
Laboratory Assistant in Agricultural Economics: William Kling, B.S., College of the City of New York, 1937.
Research Professor of Veterinary Science: Carl Olson, Jr., D.V.M., Iowa State College, 1931; M.S., University of Minnesota, 1934; Ph.D., 1935.

E. Short Courses

Instructor in English: Charles N. DuBois, A.B., Middlebury College, 1934; M.A., 1935.
Instructor in Horticulture: Emil J. Tramposch, B.S., Massachusetts State College, 1935.

Table II.—Speakers for the Year

A. Convocation

1936

Dec. 3. William G. Avirett, Deerfield Academy.
Dec. 10. Walter S. Young, Superintendent of Schools, Worcester, Mass.
Dec. 17. Albert W. Keane, Sports Editor, Hartford Courant.

1937

Jan. 14. Robert J. Watt, Secretary, Massachusetts State Federation of Lab "The Program of Organized Labor in the Nation and the State.'
Jan. 21. William P. Ryan, M.D., Department Commander, The Ameri Legion, Department of Massachusetts.
Feb. 11. President Hugh P. Baker, M.S.C.
Feb. 18. Professor W. Elmer Ekblaw, Clark University.
Feb. 25. Concert by College Band.
Mar. 4. Wilfrid Husband. "Toward a New Far Eastern Policy."
Mar. 11. Thomas P. Dooley, M.S.C., 1913, Jamaica Plain High School.
Mar. 18. Professor Phillips Bradley, Amherst College. "What Price Neutralit
Mar. 25. Flavel Shurtleff, Counsel, American Planning and Civic Association
Apr. 8. John H. Baker, Executive Director, National Association of Audul Societies.
Apr. 15. Professor Erwin H. Schell, Head of Department of Business and I gineering Administration, Massachusetts Institute of Technology
Apr. 22. Inspector W. H. Draine Lester, Bureau of Investigation, Washingt D. C.
Apr. 29. Phi Kappa Phi Convocation. Professor Eduard Prokosch, Yale U versity. "Language and Life."
May 6. Insignia Convocation. Walter Prichard Eaton.
May 13. Burnham Declamation Contest.
May 20. Trustee Convocation. Professor Frank Prentice Rand, M.S.C.
May 27. Senior Convocation.
Sept. 22. President Hugh P. Baker and Dean William L. Machmer.
Sept. 30. Class Meetings.
Oct. 7. Student Singing.
Oct. 14. Scholarship Day. Dean Marjorie H. Nicolson, Smith College.
Oct. 21. Professor Brewer G. Whitmore, Smith College.
Oct. 28. Honor Council. Professor Frederick S. Troy and John Hoar, M.S.C
Nov. 4. Dr. Evan F. M. Durbin, London School of Economics.
Nov. 18. President Charles M. Herlihy, Fitchburg State Teachers College.

B. Sunday Vespers

1936

Dec. 6. Professor Harry N. Glick, M.S.C.
Dec. 13. Dr. Edwin Bradford Robinson, Holyoke, Mass.

1937

Jan. 10. W. J. Kitchen, Executive Secretary, New England Student Christ Movement.
Jan. 17. Professor James T. Cleland, Amherst College.
Jan. 24. President Hugh P. Baker, M.S.C.
Feb. 14. Dr. Robert A. Hewitt, S.J., Weston College.
Feb. 28. Andrew Kerr, Colgate University.
Mar. 14. Rev. Hilda L. Ives.
Mar. 21. Professor David Morton, Amherst College.

Sept. 26. Dr. James Gordon Gilkey, South Congregational Church, Springfi
Oct. 3. Professor Frank A. Waugh, M.S.C.
Oct. 10. Bishop Charles Wesley Burns, Boston.
Oct. 17. Rabbi Milton Steinberg, New York City.
Oct. 24. Professor William Lyon Phelps, Yale University.

C. 31. Rev. Jeffery Campbell, Boston.
N. 7. Mrs. Marguerite H. Bro, Secretary, Congregational Board of Social Action.
N. 14. Rev. D. Brewer Eddy, Boston.

Table III.—Attendance

	Registration Nov. 1, 1936			Registration Nov. 1, 1937		
	Men	Women	Total	Men	Women	Total
Graduate Students	105	29	134	117	20	137
Undergraduate Students						
S or Class	165	59	224	175	69	244
J or Class	187	73	260	171	74	245
S homore Class	201	73	274	196	70	266
F hman Class	231	86	317	243	113	356
S ial Students	4	4	8	2	7	9
Totals	788	295	1,083	787	333	1,120
Stockbridge School						
S nd year	95	3	98	108	10	118
F t year	133	13	146	154	7	161
S ials	2	–	2	1	1	2
Totals	230	16	246	263	18	281
Short Course Enrollment						
W ter School	75	11	86	130	4	134
S mer School	67	74	141	73	68	141
Totals	142	85	227	203	72	275
Grand Totals (excluding duplications)	1,265	425	1,690	1,370	443	1,813

Educational Meetings

Educational Meetings and Conferences

	1936	1937
A ricultural Alumni Seminar	–	175
A ricultural Conservation Conference	100	76
B nstable County 4-H Group	–	6
B sketball Tournament Committee—1936 (3); 1937 (1)	24	12
B kshire County 4-H Leaders (2)	56	–
B kshire County 4-H Poultry Club—1936 (1); 1937 (1)	30	45
B reau of Biological Survey (representatives)	18	–
C ristmas Greens Meeting	–	300
C unty Agricultural Agents—1936 (1); 1937 (2)	20	78
C unty Agricultural Agents' Poultry Disease Conf.	15	–
C nberry Growers (representatives) (Waltham)	–	24
C nberry Weed Meeting (Wareham)	–	125
H. Kagawa Lecture	900	–
E sex County Agricultural School Group	25	–
E sex County 4-H Leaders and Members	10	–
F rm and Home Week	5,000	4,500
F derated Dairy Ass'n. of Mass. (Directors)	–	33
F derated Poultry Ass'n. of Mass. (Directors)	–	25
F rists' School (Waltham)	192	264
F od Preservation Institute	8	–
F otball Clinic	–	75
4-H Boys' Conservation Camp	20	41
4-H Canning Clubs (3)	–	25
4-H Clothing Leaders	10	–
4-H Club Agents' Conference	15	–
4-H Conservation Conference	15	–
4-H Girls' Conservation Camp	30	31

4-H Men Leaders' Conference	–	
4-H State Camps (Junior Leaders and Adult Leaders)	222	2
Franklin County 4-H Garden Leaders	20	
Hampden County 4-H Canning Leaders	–	
Hampden County Women Leaders (candy making)—1936 (2); 1937 (1)	49	
Hampshire County Adult Clothing Leaders (4)	80	
Hampshire County 4-H Canning Group (2)	–	
Hampshire County 4-H Leaders—1936 (3); 1937 (1)	145	
Hampshire County 4-H Leaders (garden)	25	
Hampshire County 4-H Poultry Group (2)	–	
Hampshire County Music Institute (3)	75	
Home Demonstration Agents' Conference—1936 (1); 1937 (3)	20	
Home Garden School (Waltham) (7)	–	4
Housing Conference	–	
Landscape Architecture Alumni Conference	–	2
Massachusetts Dairy Cattle Breeders (representatives)	–	
Massachusetts Extension Committee on Relationships (3)	–	
Massachusetts Extension Workers' Conference	130	1
Massachusetts Federation of Garden Clubs School	12	
Massachusetts Fruit Growers' Advisory Committee	20	
Massachusetts Milk Inspectors	40	
Massachusetts Soil Conservation Committee—1936 (2)	22	
M. S. C. Faculty Women's Extension Group—1936 (8); 1937 (2)	138	
M. S. C. Women's Advisory Council	13	
Massachusetts Vegetable Council	–	
Middlesex County 4-H Camp	150	1
Middlesex County 4-H Delegates	85	
Middlesex County 4-H Garden Leaders (Waltham)	90	
Middlesex County Soil Conservation Committee (Waltham)	–	
Mount Holyoke College Group (dairy manufactures)	40	
National Shade Tree Conference (Waltham)	200	
Norfolk County 4-H Delegates	40	
Poultry Breeders' Conference	64	
Recreational Conference Meetings	1,000	1,(
Religious Advisory Council	28	
Ski Clinic	–	
Soccer Clinic	–	
Tea Room & Tourists' Home Conference	–	
Tri County Fruit Meeting	–	1
Trustees of M. S. C. and Co. Aid to Agriculture	50	
Western Massachusetts Basketball Conference	80	1
Western Massachusetts Soil Conservation Committee	40	
Women's Advisory Council, Extension Service	75	1
W. P. A. Clothing Supervisors	–	1
Total	9,441	9,3

EDUCATIONAL EXHIBITIONS, DEMONSTRATIONS AND CONTESTS

	1936	19
Basketball Clinic	500	
College Livestock Judging Teams	70	
Connecticut Valley Day	–	4
Dad's Day	602	4
Dedication of Chimes	–	4
Field Day (Waltham)	1,207	1,1
4-H All Stars—1936 (2); 1937 (2)	70	
4-H Clubs—1936 (17); 1937 (10)	259	3
4-H Dairy Club	20	
4-H Home Economics Contests	75	1

H Judging Contests (Waltham and M. S. C.)—1936 (3); 1937 (1)	92	150
H Poultry Judging Team (3)	32	–
H Service Clubs—1936 (1); 1937 (5)	110	280
H State Camp Reunion	150	35
mpshire County 4-H Achievement Day	50	60
mpshire County May Festival	1,000	1,200
gh School Day	605	600
rse Show	1,100	500
rticultural Show	13,052	23,751
e Cream Demonstration	36	–
terscholastic Judging Contest	203	250
iddlesex County 4-H Field Day (Waltham)	110	–
iddlesex County 4-H Vegetable Judging Team (Waltham)	–	16
ilking Machine Demonstration	30	–
other's Day	350	102
w England Canoe Racing Association Demonstration	400	–
creational Conference Exhibits	3,000	3,000
hall High School Basketball Tournament	15,000	17,878
hall High School Relays	500	500
hall High School Track Meet	–	400
getable Disease Demonstration (Waltham)	–	12
cational Agricultural Judging Contest (Waltham)	–	70
cational Agricultural Judging Elimination Contest	100	90
omen's Athletic Field Dedication	700	–
Total	39,423	52,029

CAMPUS MEETINGS SUPERVISED BY OFF-CAMPUS AGENCIES

	1936	1937
ult Alien Education Conference (1 week)	–	30
herst Boy Scouts (2)	27	–
herst Camera Club—1936 (4); 1937 (5)	163	211
herst Cub Scouts	–	30
herst District Scout Masters—1936 (2); 1937 (1)	80	30
herst Publicity Association—N. E. Section	–	37
herst Nature Club—1936 (8); 1937 (6)	328	277
herst Recreation Council (2)	25	–
herst Women's Club, Garden Section	12	–
herst Women's Club, Homemaking Section	28	35
erican Chemical Society—Conn. Valley Section	–	55
erican Country Life Association—N. E. Section	–	62
erican Society of Agronomy—N. E. Section	–	25
lington Study Group (Waltham) (6)	96	–
soc. of Governing Boards of State Univ. & Allied Institutions	–	45
soc. Women of Mass. Farm Bureau (Waltham)	–	16
ston Market Gardeners' Association (Waltham)	102	–
y Scout First Aid Course	15	–
y Scout Swimming Meet	40	–
attleboro 4-H Club	–	5
ockton Garden Club (Waltham)	30	–
nton Garden Club (Waltham)	25	–
pe Cod Cranberry Growers' Association (Wareham)	250	300
vil Service—Poultry Inspector	60	–
chituate Garden Club (Waltham)	–	22
mmissioners—Hampshire County Boy Scouts	20	–
nnecticut Fruit Growers' Association (Wareham)	75	–
nnecticut Poultry Tour	–	70
nnecticut Valley Home Economics Association	45	60
nvers Garden Club (Waltham)	–	14

Eastern States Cooperative League (1 week)	125
Eastern States Cooperative League—Manager's Course (1 week)	–
East Milton Garden Club (Waltham)	30
East Walpole Garden Club (Waltham)	–
Entomologists' Society	100
Franklin County Nurses' Association	–
Franklin-Hampshire Selectmen's Association	–
Gloucester Garden Club (Waltham)—1936 (2); 1937 (1)	41
Hampshire County Consumers Council	19
Hampshire County Pomona Grange Field Day	700
Hampshire County Trustees for Aid to Agriculture	25
Hampshire-Franklin Boy Scout Council—1936 (3); 1937 (1)	75
Hampshire-Franklin Boy Scout Council Dinner	–
Hampshire-Franklin Health & Safety Institute	–
Hampshire-Hampden County Consumers Council	195
Harvard College Summer School Group (Waltham)	15
Harvard Garden Club (Waltham)	12
Haverhill Women's Club—Garden Section (Waltham)	9
Holden Garden Club	12
Holyoke and Northampton Florists and Garden Club—1936 (2); 1937 (1)	65
Hyde Park Garden Club (Waltham)	20
Lancaster Garden Club (Waltham & Amherst)	28
Lawrence Garden Club (Waltham)	–
Lincoln Garden Club (Waltham)	–
Lynn Garden Lovers Club (Waltham)	10
Mansfield Garden Club (Waltham)	12
Massachusetts A. C. P. Committee	–
Massachusetts Collectors' & Treasurers' Association	–
Massachusetts Dietetic Association	–
Massachusetts Farm Bureau Directors (Waltham & Amherst)	30
Massachusetts Federation of Garden Club Leaders (Waltham)	30
Massachusetts Jersey Cattle Club	–
Massachusetts Library Association	40
Massachusetts Parent-Teacher Association (summer meeting)	125
Massachusetts Savings Bank (Women)	–
Massachusetts Secondary School Principals' Conference	600
Massachusetts State Federation of Women's Clubs	650
Massachusetts State Grange Day	400
Massachusetts Veterinary Association	32
Medfield Garden Club (Waltham)	35
Merry Weeders Garden Club (Waltham)	–
Middlesex County Vegetable Growers—Sectional (Waltham)	20
National Gardeners' Association—Boston Branch (Waltham)	22
National Grange Rally	–
Needham Garden Club (Waltham) (2)	–
New England Biological Association	40
New England Carnation Growers' Association (Waltham)	–
New England College Librarians	80
New England Greenskeepers Association (Waltham)	–
New England Greenskeepers Association—Massachusetts Section (Waltham and Amherst)	25
New England Hotel Association	–
New England Institute of Cooperation	600
New England Marketing Officials	10
New England Modern Language Association	–
New England Plant Pathologists (Waltham)	–
New England Power Co.—Rural Electrification Conf. (Waltham)	–
New England Seedsmen's Association	16
Newton Garden Club (Waltham)	–

Northeastern Farm Bureau Presidents & Secretaries	20	–
Patriarch Militant I.O.O.F. of New England	250	–
Seven Hills Garden Club (Waltham)	–	16
Rural Resettlement Conference (2)	–	19
Sons of Colonial Wars (Waltham)	–	25
Southboro Garden Club	31	–
Stony Brae Garden Club (Waltham)	–	15
Saw Garden Club (Waltham)	–	18
Supervisors of Adult Alien Education	–	50
Vegetable Variety & Seedsmen's Conf. (Waltham & Amherst)	–	70
Vocational Agricultural Teachers' Conference	90	–
Walpole Garden Club (Waltham)	12	–
Waltham Garden Club (Waltham)	20	–
Watertown Garden Club (Waltham Garden Club)	40	–
Wellesley Garden Club (Waltham)	10	–
Westboro Garden Club (Waltham)	–	16
Western Massachusetts Winter Sports Council—1936 (2); 1937 (1)	26	25
West Newbury Garden Club (Waltham)	–	15
West Newton Education Club, Garden Section (Waltham)	–	13
Winchester Garden Club (Waltham)	–	20
Woburn Garden Club (Waltham)	9	–
Weymouth Garden Club (Waltham)	–	20
W. P. A. Recreation Training Conference	–	150
Yale University Forestry Group	–	15
Young Peoples' Forum of Northampton	–	35
Y. W. C. A. Conference	–	15
Total	6,177	5,441
Grand Total	55,041	66,857

Table IV.—Statistics of Freshmen Entering in September, 1937

A. *Home Addresses of Students (Classified by Towns and Cities)*

Adams	1	Greenfield	5	Norwood	
Agawam	2	Hadley	2	Orange	
Amesbury	2	Hamden, Conn.	1	Orleans	
Amherst	20	Hanson	1	Orleans, Vt.	
Andover	1	Hardwick	3	Oxford	
Arlington	4	Harvard	1	Palmer	
Ashfield	1	Hatfield	1	Peabody	
Athol	3	Hathorne	1	Pelham	
Attleboro	1	Haverhill	1	Pittsfield	
Ayer	1	Holden	1	Poughkeepsie, N. Y.	
Barnstable	1	Holyoke	15	Quincy	
Barre	1	Hopkinton	2	Raynham	
Belchertown	3	Ivoryton, Conn.	1	Reading	
Beverly	4	Kingston	1	Rockville, Conn.	
Bloomfield, N. J.	1	Lancaster	1	Salem	
Boston	32	Lawrence	3	Scituate	
Bourne	2	Lee	2	Scarsdale, N. Y.	
Braintree	1	Leicester	2	Shrewsbury	
Brimfield	1	Lenox	1	Simsbury, Conn.	
Brockton	6	Leverett	1	Somerville	
Brookfield	1	Lexington	1	South Hadley	
Brookline	4	Lowell	1	Springfield	
Brooklyn, N. Y.	1	Ludlow	1	Stockbridge	
Central Aguirre, P. R.	1	Lynn	1	Stoneham	
Charlemont	2	Malden	4	Stoughton	
Chelmsford	1	Manchester, N. H.	1	Sturbridge	
Chelsea	2	Marblehead	1	Sudbury	
Chester, Vt.	1	Marlboro	1	Sunderland	
Chicopee	6	Medford	2	Taunton	
Concord	2	Medway	1	Townsend	
Cummington	1	Melrose	2	Ulster Park, N. Y.	
Dalton	3	Mendon	1	Walpole	
Dedham	1	Methuen	1	Waltham	
Deerfield	3	Millbury	1	Ware	
Dracut	1	Millis	1	Wareham	
Duluth, Minn.	1	Millville	1	Washington, D. C.	
Duxbury	1	Milton	1	Waterbury, Conn.	
East Bridgewater	2	Montague	3	Watertown	
Easthampton	4	Natick	1	Wayland	
Easton	1	Needham	1	Wellesley	
Fairhaven	1	New Bedford	2	Westfield	
Fitchburg	1	Newburyport	1	West Haven, Conn.	
Foxboro	1	New Marlboro	1	Westminster	
Framingham	1	Newton	3	Weymouth	
Franklin	1	New Haven, Conn.	1	Whately	
Freetown	1	Northampton	15	Williamstown	
Gardner	2	Northbridge	1	Windsor	
Great Barrington	2	North Brookfield	1	Winthrop	
Goshen	1	Northfield	2	Worcester	
				Wrentham	

B. *Home Addresses (Classified by States and Countries)*

	Number	Per Cent		Number	Perc
Connecticut	7	1.98	New Jersey	1	
District of Columbia	1	.28	New York	4	1.
Massachusetts	338	94.93	Vermont	2	
Minnesota	1	.28	Porto Rico	1	
New Hampshire	1	.28			
				356	100.

C. *Home Addresses (Classified by Counties of Massachusetts)*

	Number	Percent		Number	Perc
Barnstable	4	1.19	Hampshire	51	15.
Berkshire	27	8.01	Middlesex	40	11.1
Bristol	12	3.56	Norfolk	19	5.5
Essex	19	5.64	Plymouth	13	3.3
Franklin	20	5.93	Suffolk	40	11.1
Hampden	49	14.55	Worcester	44	13.3
				338	100.0

D. *Nativity of Parents*

	Number	Perc
Neither parent foreign born	229	64.
Both parents foreign born	89	25.
Father (only) foreign born	30	8.
Mother (only) foreign born	8	2.
	356	100.

E. Education of Father

	Number	Percent
C mon School	139	38.87
H School	91	25.63
B ness College	23	6.48
C ge or University	93	26.20
N tatistics	10	2.82
	356	100.00

F. Occupation of Father

	Number	Percent
A culture and Horticulture	37	10.42
A ans	61	17.18
B ness	134	37.46
P essional	48	13.52
M ellaneous	43	12.12
R ed	5	1.41
D ased	20	5.63
N tatistics	4	1.13
U nployed	4	1.13
	356	100.00

G. Intended Vocation of Students

	Men	Women	Total	Percent
1 *Farming*, including Market Gardening, Nursery business, Florist's business, Fruit growing, Management of Estates, General farming, Poultry Husbandry, Livestock Breeding	22	2	24	6.74
2 *Agricultural Business*, including sales of agricultural products and other capacities such as the fertilizer industry, the feed industry, etc.	2	–	2	.56
3 *Science*, including Chemistry, Botany, Entomology, Bacteriology, etc., in such capacities as research experts, laboratory assistants, technologists	88	20	108	30.34
4 *Landscape Architects*, Agricultural Engineers, Foresters	19	2	21	5.90
5 *Teachers*, including College Professors, High School Instructors, Specialists in Extension Education, etc.	13	11	24	6.74
6 *Professional Practitioners*, including Physicians, Surgeons, Dentists, Lawyers, Veterinarians, Ministers, etc.	39	7	46	12.92
7 *Civil Engineers*	1	–	1	.28
8 *Industrial Enterprises*, including Manufacturing, Merchandising, Advertising, Banking, Accounting, Real Estate, Insurance, etc.	11	4	15	4.21
9 Authors, Artists, Journalists, etc.	4	3	7	1.98
10 Home Economics	–	37	37	10.39
11 Social Service	12	12	24	6.74
12 Undecided	32	15	47	13.20
	243	113	356	100.00

H. Farm Experience

	Men	Women	Number	Percent
B ght up on a farm	23	22	45	12.64
N brought up on a farm and having no or practically no rm experience	176	86	262	73.59
N brought up on a farm but having had some farm experience	44	5	49	13.77
	243	113	356	100.00

I. Miscellaneous Statistics

A age age (years)	18.54

Bulletin

MASSACHUSETTS STATE COLLEGE

SUMMER SCHOOL

- 1938 -

Bulletin

MASSACHUSETTS STATE COLLEGE

Summer School Number

For the Session July 5 to August 13, 1938

MEMORIAL HALL

Amherst, Massachusetts

lume XXX March, 1938 Number 3

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4-'38. No. 3547.

SUMMER SCHOOL STAFF

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Director of Extension Service

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Matron of Women's Dormitory

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VISITING INSTRUCTOR

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irst address is business, second is residence.

NOTICE

he College reserves, for itself and its departments, the right to withdraw or change t announcements made in its catalogue, either as to courses, personnel, fees, or facilities.

GENERAL ANNOUNCEMENT

The thirtieth session of the summer school at Massachusetts State College w begin July 5 and continue through August 12.

Admission — There are no formal examinations for admission to the summ session. Students, both men and women, will be admitted to such courses as th preparation allows.

Purposes — The summer school program is arranged for:

1. School superintendents, principals, and teachers connected with senior a junior high schools and elementary schools, who seek advanced instruction either w or without relation to an academic degree.
2. Teachers who desire to pursue courses that will better prepare them for th work.
3. College students who desire to further their regular college work.
4. Any serious student who finds courses suited to his preparation and needs

Full Session Courses

Registration — Registration will be held in Memorial Hall from 9 A. M. 4:30 P. M. on Tuesday, July 5. Late registrations should be made at the Short Cou Office, South College. (Telephone Amherst 900.)

Classes will begin promptly at 8 A. M. Wednesday, July 6, and will be held announced in the description of courses until Wednesday, August 10, inclusive. aminations will be held on Thursday and Friday, August 11 and 12.

Classes will be held on Saturday, July 9, to make up Tuesday classes mis due to registration, and on Saturday, July 16, for the holiday, July 4.

Change of Program — Notice of any proposed addition or cancellation of cou after registration must be reported at once in person at the office of the Directo the Summer Session. Students will be allowed, after securing the consent of the Direc to make such additions or cancellations up to and including July 11. After that they will be permitted to make no changes whatever. A student attending any co is required to do the full work assigned to the class, unless registered as an auditor

Credits — All courses are measured in terms of semester credit units. The number of college credits which may be earned in one summer cannot exceed six se ter units.

Grades and Passing Mark — All undergraduate grades are given in per ages with 60 as a required minimum for passing a course successfully.

Credit Courses Offered

Fundamentals of Nutrition
Genetics and Eugenics
General Chemistry
Qualitative Chemistry
Introduction to Political Science
State and Municipal Government
Current Teacher Problems
The School in Society
The Evolving Objective Test
Secondary School Administration
Problems in Vocational Teaching
Principles of Vocational Education
American Literature 1798-1860
Major Romantic Poets
Public Speaking
Speech Fundamentals
History of the United States 1763-1865
International Relations Since the World
Modern European History 1760-1938
Government of the United States
Food Preservation
Mathematics of Finance
Solid Geometry and Mensuration
Recreation Activities
Ethics
Psychology of Guidance

GRADUATE SCHOOL

Registration of Graduate Students — (Summer Session.) Graduate students t candidates for an advanced degree at Massachusetts State College must submit idence of their graduation, but are not required to file transcripts of their past train-g. All such should consult the Director of the Graduate School and secure his consent fore registering for any courses. Such students may obtain, upon request to the rector, an official statement of the work completed in the Summer Session.

Graduate students desiring credit toward an advanced degree at the Massa-usetts State College must meet the requirements of the Graduate School at the time their registration, as follows:

Admission — Admission to the Graduate School will be granted:

1. To graduates of the Massachusetts State College.

2. To graduates of other institutions of good standing who have received a chelor's degree substantially equivalent to that conferred by this college.

Admission to the Graduate School does not necessarily admit to candidacy for advanced degree, students holding a bachelor's degree being in some cases permitted take graduate work without becoming candidates for higher degrees.

Applications for membership in the Graduate School should be presented to the rector of the Summer Session accompanied by an official transcript of the appli-nt's undergraduate record, and a record of any graduate work he may have had, and a statement whether the applicant desires to work for a degree.

Registration is required of all students taking graduate courses, the registration d being obtained through the Director of the Summer Session.

Fees — For graduate students the usual Summer School expenses of tuition and ecial fees will be collected.

Graduate Studies — Some graduate work is available during each semester of e college year. In the summer session, however, special arrangements must be made th the head of the department in which the student plans to take work, except in e case of courses offered in this circular.

During the present summer session these courses may be taken for credit towards advanced degree.

ndamentals of Nutrition
enetics and Eugenics
ate and Municipal Government
rrent Teacher Problems
e School in Society
e Evolving Objective Test
condary School Administration
oblems in Vocational Teaching
inciples of Vocational Education

American Literature 1798-1860
Major Romantic Poets
History of the United States 1763-1865
International Relations Since the World War
Government of the United States
Mathematics of Finance
Ethics
Psychology of Guidance

EXPENSES

There is a tuition charge of $3.50 for each semester credit. All fees must b paid to the College Treasurer, within one week from the opening date.

A special recreation fee of $2.50 must be paid at time of registration by eac student registering in the six weeks session for credit courses. There are no exceptio to this rule.

Total expense for the six weeks summer session will probably vary from $80.(to $100.00 as itemized below.

	Low	*High*
Tuition (3–6 semester hours)	$10.50	$21.00
Recreation Fee	2.50	2.50
Board	36.00	42.00
Room	18.00	18.00
Books	5.00	10.00
Laboratory Supplies	2.00	4.00
Laundry	6.00	6.00
	$80.00	$103.50

Rooms (Women) — The women's dormitory is available for women studen There are thirty double and thirty-eight single rooms. A uniform rate of $3.00 per we will be charged each student. *Each one will be required to supply her own blankets, shee pillow cases, etc.* Convenient arrangements for laundry work may be made in Amher *Students taking rooms in the dormitory must conform to dormitory regulations.* Obs vance of these regulations is one of the conditions under which the rooms are rented a failure to comply with the regulations will mean a surrender of the room and a f feiture of the amount paid. A student whose conduct is not satisfactory may be ask to withdraw from the dormitory.

All requests for dormitory rooms must be made to the Treasurer of the colle A deposit of $3.00 is required in order to secure a reservation in the dormitory. Stude will be notified by the Treasurer, upon receipt of the fees, as to the location of t room. In case any change is desired, the request should be made immediately. Depos will not be refunded after the beginning of the summer session. The deposit is appl to total payment for the room at registration.

Rooms (Men) — The men's dormitory, Thatcher Hall, with accommodatic for one hundred and fifty students is available for summer school men. The same p cedure should be followed in reserving rooms and paying initial fees as explained the previous paragraph. Bed linen and blankets must be furnished by each stude The rate is $3.00 per week.

There is also an ample supply of furnished rooms in private homes convenient the campus at moderate rates. A list of desirable locations will be available at ti of registration.

Board — The college maintains a cafeteria on the self-service plan in Dra Hall, on the college grounds. Board may be had at from $6.50 to $7.00 a week. G boarding places can also be secured outside of the college if desired.

The College reserves the right to close the cafeteria by August 1, unless th are at least twenty-five students in regular attendance. Local restaurants will be av able for the last two weeks if such action is made necessary.

RECREATION

The Summer Session offers many advantages. Amherst, a quiet college t located in the beautiful Connecticut Valley and rich in historical lore, beckons summer visitor. The living conditions are excellent and especially desirable for stud who wish to spend a part of the summer in study in restful surroundings.

The social life of the Summer School is attractive. There are many interesting places — groves, brooks, woods, near Amherst which are easily accessible, especially for those with cars.

Several picnic parties to such scenic spots as Mount Holyoke, Whately Glen and Sugar Pasture in the Pelham Hills are arranged each summer and have come to be one of the most pleasurable parts of the recreation program.

Golf — Amherst has a fine nine-hole course and privileges are extended to summer school students at a special rate for the six weeks.

Swimming — The College swimming pool, located in the Physical Education Building, will be available from July 5 to the end of the session. Recreation fee includes this privilege without further cost to the student.

Tennis — There are several tennis courts available for summer school students.

Badminton, archery, softball and horseshoe pitching are other sports which may be enjoyed.

When desired, all equipment for these sports will be furnished except for such items as tennis balls or badminton "shuttles."

Informals — At regular intervals informal social gatherings are held in Memorial Hall with dancing, bridge, bowling, table tennis and shuffleboard.

Recreation for the Summer Session will be under the direction of Assistant Professor Llewellyn L. Derby of the Department of Physical Education.

CAMPUS FACILITIES

The College — The College campus occupies an attractive site three-quarters of a mile north of Amherst center. The College has over 700 acres of land, most of which is in a high state of cultivation, and illustrates most of the leading agricultural industries of Massachusetts. There is a large range of greenhouses of the most modern and approved type; there is a modern dairy barn with a large herd of pure-bred cattle; there are good horses, pure-bred swine, sheep, and poultry; there are fields of corn, potatoes, clover, and grass in season; orchards of apple, peach, plum, and pear trees; tracts of good forest land, nurseries, and market gardens. There are also considerable tracts devoted to experiments, many of which are of unusual interest. Then there are well-equipped departments of botany, entomology, and chemistry, dealing in the most thorough manner with these special sciences. These advantages of plant, equipment, and teaching staff are made available to Summer School students.

Libraries — The College Library contains over 100,000 bound volumes and a very large collection of pamphlets, which are of great practical value, being monographs on the technical subjects studied in the College. These pamphlets include particularly the publications of the United States Department of Agriculture and those of the State Experiment Stations of other Agricultural colleges in this country and abroad. Among the bound volumes, works on agriculture, horticulture, botany, entomology and the various sciences, connected especially with agriculture predominate, but literature, history, economics, religion, sociology and art are also well represented. More than five hundred periodicals, covering technical and general subjects, are regularly taken and both the current numbers and the back files are readily accessible.

The Library is open for readers from 8:00 A. M. to 5:00 P. M. during the summer.

There are numerous department libraries, such as those in Stockbridge Hall, Fernald, French, Marshall, and Clark Halls, where many valuable publications may be consulted.

The main Library has recently moved into its new building, the Goodell Library, which is the result of thirty years of effort and planning. This building offers unusual conveniences for study and research, with many separate study desks, and

ace to keep materials for thesis work together. For those interested in library facties in their home communities, the Goodell Library building is worthy of study, r its practical or functional arrangement, unusual day and night lighting, and other vel features which make it a step forward in American library design. The librarian ill be very glad at any time to discuss these problems with those who may be interted.

The town of Amherst in its Jones Memorial Library offers further additional lvantages of unusual interest.

College Bookshop and Soda Fountain — The College maintains a bookstore oviding all textbooks used in courses. This is located in North College. A full line paper, notebooks, and writing materials is carried. There is also a well-equipped da fountain, and light lunches, ice cream, and smokers' supplies are on sale. Since e college is situated about one mile north of the town and away from the shopping ntre, it is hoped this convenient arrangement will aid students in supplying their rious needs.

SPECIAL PROGRAMS DURING SUMMER SESSION

ly 5–12 Conservation Camp, 4-H Girls.

ly 11–23 Training Course for Civilian Conservation Corps Educational Advisers.

ly 14–21 4-H Junior Leaders Camp.

ly 23–29 Adult 4-H Leaders Camp.

ly 26–29 Farm and Home Week

The Annual Farm and Home Week held under the direction of the College Extension Service in July brings hundreds of people to the campus for the four-day program. This year the dates are July 26 to July 29 inclusive. A fine program of lectures, with many speakers of national prominence, gives summer school students an unusual opportunity during this session. No extra fees. Plan to have your friends visit the college at that time.

SUMMER SCHOOL COURSES

BIOLOGY

Fundamentals of Nutrition

This course is designed to give the student an understanding of the digestio assimilation, and utilization of foods by the human body. The materials included the course should be of value to teachers of physiology, hygiene, foods work and physic education, and to the student who desires a knowledge of how the body functions.

The course will include discussions of the mechanics of digestion, the sourc and functions of enzymes, the functions of proteins, carbohydrates, fats, minerals a vitamins in the body, energy metabolism, and the functions of the endocrine glan primarily concerned with nutrition. The relation of the fundamental principles of n trition to food selection and health habits, and to the evaluating of fads in diets and t claims of food advertisers, will be considered.

5 class hours a week. 2 semester credit
9:00 — 9:50, M. T. W. Th. F.
Room 111, Stockbridge Hall. Mrs. Gladys Co

Genetics and Eugenics

This course deals with the general problems concerned in human reproducti and inheritance. The main topics studied will consist of the physiology of reprodu tion, the physical basis of inheritance, and the mode of transmission of human cha acteristics. Consideration will also be given to such questions as the causes of variatio the relative importance of genetic and environmental influences, the mechanism sex determination, as well as population trends, sterilization, and kindred euger problems.

5 class hours a week. 2 semester credit
9:00 — 9:50, M. T. W. Th. F.
Room 102, Stockbridge Hall. Professor Ri

CHEMISTRY

General Chemistry I

A course in General Chemistry for those who have had high or preparato school chemistry or its equivalent. The course also provides an opportunity for teache or others who wish to review the subject. Topics included in the course are: aton theory, periodic system, atomic and molecular weights, simple formulae, chemic equations, acids and bases, ionization, chemical equilibrium, atomic structure a valence. The descriptive chemistry of a few of the common elements will be include The laboratory work is the central feature of the course, and is supplemented by t lectures. The object of the course is to give the student a scientific training as well as prepare him for advanced courses. This course is equivalent to Chemistry 3.

5 class hours and 5 2-hour laboratory periods a week. 4 semester credi
9:00 — 9:50; 10:00 — 11:50 M. T. W. Th. F.
Lect. Room 26; Lab. Room 12, Goessmann Laboratory,
Assistant Professor Fessend

Qualitative Chemistry III

A course in general Qualitative Analysis giving the student a working knowled of the fundamental principles and laws concerning the behavior of solutions of electr lytes as well as the specific chemical characteristics and reactions of the common catio and anions. The lectures will include discussions of the laws and theories which of a rational interpretation of the modern laboratory procedures employed in the separati

d identification of the common ions. The laboratory work concerns itself with a study the characteristic properties, reactions and the separation and identification of tions and anions. This course is equvalent to Chemistry 25. Prerequisite, Chemistry or 3, or Summer Chemistry I or its equivalent.

5 class hours and 5 2-hour laboratory periods a week — 4 semester credits.
9:00-9:50; 10:00-11:50 M. T. W. Th. F.
Lect. Room 28; Lab. Room 7, Goessmann Laboratory
Associate Professor Serex

ECONOMICS

troduction to Political Science

A course designed to introduce the student to the subject matter of Political ience, envisaged as that branch of the Social Sciences which is concerned with the wer relations of society and with the general patterns of dominance, subordination, d cooperation in the political framework.

Subjects treated include: — the nature and methods of Political Science; the gin, evolution, and theory of the State; forms of government; ends and purposes of vernment — general views and theories of individualism and capitalism, socialism d communism, fascism; sovereignty; civil and political rights; constitutions and nstitution-making; law; public administration; public opinion and political parties.

This course is designed to meet the needs of not only undergraduate and grad- te students, but also of teachers and those adults who may be interested in studying e problems of modern government.

5 class hours a week. — 2 semester credits.
11:00-11:50 M. T. W. Th. F.
Room D, Old Chapel. — Assistant Professor Rohr

ate and Municipal Government

A survey of the governmental structure and functions of the American State d its local governments — county, city, town, and village, and a careful analysis of sting conditions. The functional approach is used with emphasis upon administrative blems arising from such functions as: — education, charities and corrections, finance, blic works, civil service, police, taxation, and planning.

May be taken with profit by undergraduates who have taken American National overnment, by graduate students interested in particular local problems, by teachers social science, and by others who are interested in local governmental trends.

5 class hours a week — 2 semester credits.
8:00-8:50 M. T. W. Th. F.
Room D, Old Chapel, — Assistant Professor Rohr

EDUCATION

rrent Teacher Problems

A combination course in methods of teaching and school management based a state-wide survey made in 1938. The problems are those of the teachers in Mass- husetts now in their first year of teaching experience in the public schools of the state d are the product of a complete survey. There will be reading and discussions and tablishment of rational principles for handling these and other teacher problems.

5 class hours a week — 2 semester credits.
9:00-9:50 M. T. W. Th. F.
Room 113, Stockbridge Hall — Professor Welles

The School in Society

The course considers the program and methods of education in the schools today as preparation for successful participation in the institutions of society as orga ized. The positive factors are considered and evaluated to that end, negative fact are criticized and constructive proposals are made for a sane point of view. Readi report and discussion.

5 class hours a week. 2 semester credi
11:00-11:50 M. T. W. Th. F.
Room 113, Stockbridge Hall Professor Wel

The Evolving Objective Test

This course is designed to give an understanding of the latest developments testing. Practice is provided in the making of informal tests, using diagnostic tes interpreting test results, choosing good standard tests, etc. Many controversial iss in testing will be discussed and evaluated.

5 class hours a week. 2 semester credi
8:00-8:50 M. T. W. Th. F.
Room 113, Stockbridge Hall Mr. Pur

Secondary School Administration

This course deals with important problems of administration taken from act situations in schools. The principles involved in supervisory programs, in teacher re tionships, in pupil groupings and organizations, in pupil control, etc., are discussed a evaluated.

5 class hours a week. 2 semester credi
10:00-10:50 M. T. W. Th. F.
Room 113, Stockbridge Hall Mr. Pur

Problems in Vocational Teaching

For employed teachers and directors of vocational agriculture. Prospecti candidates may be admitted by special arrangement. The course deals with proble which grow out of the experiences of Massachusetts teachers of vocational agricultu methods and technique of teaching agriculture. Visits are made to schools and pupils on farms. Constructive assignments bearing upon the individual experien and prospects of the members of the class are merged with the campaigns under w for better teaching in agricultural schools. Regularly designated as Education 103.

It is desirable that, by previous correspondence, a plan may be developed w reference to individual problems and the instructor will recommend some defin data to be secured, relating to the problem, before the summer school opens.

10 class hours a week. 3 semester credi
8:00 — 9:50, M. T. W. Th. F.
Room 317, Stockbridge Hall Mr. Heal

Principles of Vocational Education

A study of the laws, rulings and policies in Federal and State supported voc tional education in the United States. The philosophy and experiences leading to t legislation and the evolution of a well defined body of practice especially in Massach setts since 1906. The types of work involved, the occupations represented, the adm istrative and supervisory problems, standards set, approval factors, machinery n essary and dangers to be avoided. Day schools, part-time and continuation scho evening schools. Relation to other secondary education. While leaning toward t agricultural field, this course avoids the specific phase treated in the "Methods" cours Mr. R. O. Small, State Director of Vocational Education, usually assists in this cour

*Supervisor of Teacher Training for Agricultural Schools representing the State Department of Educati

rief correspondence in advance addressed to the instructor in charge will enable the udent to secure maximum values from the course. Regularly designated as Educa-on 104.

10 class hours a week. 3 semester credits.
10:00 — 10:50, M. F.; 10:00 — 11:50 T. W. Th., 2 hours by arrangement.
Room 317, Stockbridge Hall. Mr. Heald.*

OTE: Education 103 and 104 meet the minimum requirements in Vocational Teacher Training.

ENGLISH

merican Literature 1798-1860

A chapter in American literature beginning with Irving and Bryant, including oe, Hawthorne, Emerson, Thoreau, Longfellow, Lowell, Whittier, and concluding ith Whitman. A period recognized as rich in materials and of key importance for under-anding the development of the national character.

5 class hours a week. 2 semester credits.
8:00 — 8:50 M. T. W. Th. F.
Room B, Old Chapel Assistant Professor Noyes

lajor Romantic Poets

A study of the personalities and art of five leading figures in the Romantic eriod — Wordsworth, Coleridge, Byron, Shelley, and Keats.

5 class hours a week. 2 semester credits.
10:00 — 10:50 M. T. W. Th. F.
Room B, Old Chapel Assistant Professor Noyes

ublic Speaking

The class is conducted as an actual speech situation with a chairman, speakers, nd audience. Students receive training in preparing and presenting the most common ypes of speeches for professional, business and social purposes. Individual abilities are iagnosed early in the course and constant effort is made to strengthen a speaker's good oints and to correct his weak points.

Highly individual treatment necessitates limiting registration to twelve students.
5 class hours a week. 2 semester credits.
11:00 — 11:50 M. T. W. Th. F.
Auditorium, Old Chapel Mr. Dow

peech Fundamentals

This is a basic course for all speech work, and is now considered necessary prep-ration for anyone working with, or interested in: dramatics, interpretation, debating, ublic speaking, group discussion or improved conversation. The class program develops kill, and is supplemented by readings in theory.

Each student will make a personality inventory, voice recording, test of auditory bility, and motion picture of himself in speech situations. A small charge is made for ecordings and motion pictures. These become the property of the student. Limited egistration.

5 class hours a week. 2 semester credits.
9:00 — 9:50 M. T. W. Th. F.
Bowker Auditorium, Stockbridge Hall Mr. Dow

*Supervisor of Teacher Training for Agricultural Schools representing the State Department of Education

HISTORY

History of the United States 1763-1865

A study of the general history of the United States with attention to social an economic backgrounds. A study of this period is particularly timely in that it contain the beginnings of many institutions and policies of special interest at the present time The formation of the Federal Constitution, origin of parties and the policy of neutralit and the Monroe Doctrine, the spread of the frontier and its influence upon America democracy, together with the rise of social reform movements are significant in the ligh of current developments. Attention will be given to new material and interpretation The course should be of service to students generally, to teachers in the field, and to a others who enjoy historical literature.

A similar course from 1865 to modern times will follow this one in the summe session of 1939.

5 class hours a week. 2 semester credit
11:00 — 11:50 M. T. W. Th. F.
Room C, Old Chapel Assistant Professor Car

International Relations Since the World War

The course is designed as an approach to the understanding of current inte national events by the historical method. A review of traditional policies of the gre European powers, together with attention to underlying factors such as populatio raw materials and defense, will be followed by an analysis of international relatio since the World War. Emphasis is placed upon the current problems of peace an security. Use is made of the most recent periodical literature in addition to assig ments in textbooks.

5 class hours a week. 2 semester credit
9:00 — 9:50 M. T. W. Th. F.
Room C, Old Chapel Assistant Professor Ca

Modern European History 1760-1938

A survey course for teachers and undergraduates. Designed to provide an unde standing of main developments and of recent historical points of view, along with son knowledge of the more valuable supplementary reading. Topics to be studied includ French Revolution; growth of nationalism and democracy; the Industrial Revolutio social conflict and the growth of state action; imperialism; World War; post-war conc tions and problems. Text, lectures, discussion.

5 class hours a week. 2 semester credit
8:00 — 8:50 M. T. W. Th. F.
Room C. Old Chapel Assistant Professor Caldw

Government of the United States

A study of the structure and practical operation of our federal governmer The Constitution will be read with consideration of its historical development a the interpretations placed on key clauses. The adaptation of government to new ec nomic and social conditions is a central theme of the course, with emphasis on trends the twentieth century. Library readings are designed to provide an understanding problems confronting our government today.

5 class hours a week. 2 semester credi
10:00 — 10:50 M. T. W. Th. F.
Room C, Old Chapel Assistant Professor Caldw

HORTICULTURAL MANUFACTURES

ood Preservation -- (Open to those who wish college credit or practical training without credit.)

For anyone interested in the general field of food preservation. The course offers udy and practice of the most efficient methods, and the facts, theories, and problems volved. The course will be divided into three sections of two weeks each as follows:

July 5 to July 16 — Jam, jelly and marmalade manufacture.
July 18 to July 30 — Canning of fruits, vegetables, meats and poultry.
August 1 to August 13 — Pickles, relishes and miscellaneous products.

Those interested in only one or two phases of the work may enrol for any one or o sections of two or four weeks. Each section is a completed unit and may be taken dependently of the others. Credit will be given only to those taking the whole six eks course.

class hours and 3 2-hour laboratory periods a week. 2 semester credits.
00 — 8:50 T. Th.; 8:00 — 9:50 M. W. F.
ct. Room 110; Lab. Room L, Horticultural Manufactures Laboratory
Assistant Professor Clague

Note: There is a tuition charge of $2.50 for each two-week unit, payable at time registration.

rst Unit Registration: Tuesday, July 5, with classes on Saturday, July 9 and 16, to make up periods on July 4 and 5.
cond Unit Registration: Monday, July 18, 8:00 a. m. to 12 m. First laboratory in the afternoon.
ird Unit Registration: Monday, August 1, 8:00 a. m. to 12 m. First laboratory in the afternoon.

MATHEMATICS

athematics of Finance

An applied course of general interest dealing with compound interest, discount, nuities certain, bonds, amortization of debts, methods of computing depreciation, annuities, and life insurance. Algebra including logarithms and geometric progresns is required. Lectures and problems.

5 class hours a week. 2 semester credits.
9:00 – 9:50 M. T. W. Th. F.
Room B, Mathematics Building Assistant Professor Miller

lid Geometry and Mensuration

A study of the more important theorems concerning planes, prisms, parallelopipeds, ramids, cylinders, cones, and spheres, together with the means of measuring surfaces d volumes of cylinders, cones, spheres, and of solids made up of portions or combinans of them. Lectures and problems.

5 class hours a week. 2 semester credits.
10:00 — 10:50 M. T. W. Th. F.
Room B, Mathematics Building Assistant Professor Miller

PHYSICAL EDUCATION

creation Activities

This course is planned for teachers who may be assigned to extra-curricular rk in the field of recreation in addition to their regular academic duties or individuals o are interested in community recreation.

From the theoretical side the history, nature and function of play will be conlered, while the laboratory work will include practice in such activities as tennis,

golf, badminton, swimming, soft ball, hiking, lawn bowls, archery and horseshoe pitch ing.

Program planning for recreation in the community and home will be considere and trips will be taken to nearby parks and playgrounds to observe activities in pro gress.

1 class hour and 2 2-hour laboratory periods a week. 1 semester credit.
2:00 — 2:50 F.; 2:00 — 3:50 T. Th.
Physical Education Building Assistant Professor Derb

PSYCHOLOGY

Ethics

Possibly the most outstanding concern of modern educators has reference to th development of those character qualities which will contribute to the development c good citizens. The content of this course centers around the many problems which cor front us in our attempts to achieve "character education". Emphasis will be place upon the nature of good conduct viewed both historically and contemporaneously. A attempt will be made to evaluate these various theories and practices with reference t the nature of the individual, society, and the standards of civilization. Curriculum designed for character education in our schools will be discussed and the values for th purpose attributed to various types of subject matter will be examined.

5 class hours a week. 2 semester credit
8:00 — 8:50 M. T. W. Th. F.
Room 102, Stockbridge Hall Professor Glic

Psychology of Guidance

Guidance is considered in a broad sense and includes various factors which hav to do with properly directing and orientating individuals with reference to life in genera Individual differences are studied and traits essential for success in various lines endeavor are enumerated. A major part of the course has to do with a laboratory stuc of the various mechanical devices, tests and techniques for measuring aptitudes, interes and abilities of individuals. Methods of handling data with reference to guidance pro lems are discussed. The organization of guidance programs in the public schools a considered.

5 class hours a week. 2 semester credit
10:00 — 10:50 M. T. W. Th. F.
Room 102, Stockbridge Hall Professor Gli

NATURE GUIDE SCHOOL

The Nature Guide School is an outdoor training school for nature leadershi It aims to enrich the program in nature study and in nature recreation for teache 4-H Leaders, Scout and Camp Fire naturalists, Nature Counselors, and others. It also open to boys and girls interested in nature activities.

Location: Otter River State Forest.

Courses: June 18 — Two weeks precamp school for nature counselors.
June 26 — Two weeks State Conservation Camp opens.
July 5 — Six weeks courses in ecology, bird study, and outdoor lead ship begin.
July 24 — Worcester County 4-H Camp opens.
August 7— Federated Garden Club Week begins.

Extra-Curricular Activities: Swimming, handcraft, museum activities, conservati camp fires, pioneering, mountaineering, trailside museu nature trails, camp fire cookery.

Fees: Total expense for six weeks course . . . . . $69.
One week's course for adults . . . . . 15.

For illustrated booklet giving full details, write Director of Summer Scho Massachusetts State College, Amherst, Mass.

GOESSMANN CHEMISTRY LABORATORY AND DINING HALL FROM THE CROSS WALK

OTHER EDUCATIONAL OPPORTUNITIES

AT

MASSACHUSETTS STATE COLLEGE

The Four Year Undergraduate Course

The four year course, leading to the Bachelor of Science degree, offers opp tunity for major study in the fields of Agriculture, Horticulture, Physical and Biologi Sciences, Physical Education for men, Social Sciences and Home Economics. Stre supporting courses are given in the Humanities and special training is offered for th who wish to prepare for teaching in any of the fields mentioned.

The requirements for admission are based upon the completion of a four y high school course or its equivalent. Fourteen and one-half units must be offer eight and one-half in a prescribed group including English, foreign languages, mat matics, and history; and two to six in the restricted elective group selected from ad tional science, history, and language. Free electives not to exceed four units may substituted for a corresponding number of units in the restricted elective group.

The normal annual expense of a student in this course is $550.00 which may reduced to $450.00 by strict economy. These amounts cover the annual tuition cha of $100.00 for residents of the State and other strictly college expenses. They do n include amounts for clothing, travel, etc., which vary so much with individuals. So opportunities for loans and scholarships and for work on the campus are available

Student life is wholesome and interesting, and constitutes an important p of the educational process. Intercollegiate and intramural athletics are conduct with the aim of giving every student an opportunity to participate in some spo Student academic activities such as musical clubs, dramatics, debating, publicati and judging teams are well supervised and participation in them not only offers splen training, but is considered a high campus honor.

For over half a century this College has offered a high grade of educatio training to its students and its Alumni have taken many important responsibilit throughout the world.

For catalog and further information write the Dean, Massachusetts State Colle Amherst, Mass.

The Graduate School

The purpose of the Graduate School is to provide qualified students with pro guidance in the methods of advanced study and research. Courses leading to the degr of doctor of philosophy, master of science, and master of landscape architecture a available. Students who desire advanced courses but who do not wish to become can dates for advanced degrees also may be admitted.

Admission to the Graduate School may be granted to graduates of the Mas chusetts State College and to graduates of other institutions of good standing who ha received a bachelor's degree substantially equivalent to that conferred by this College

MASSACHUSETTS STATE COLLEGE

1938 Summer Session

ADVANCE APPLICATION FOR CREDIT COURSES

July 5 — August 13

ame.....

ddress.....

e you a teacher?.....Where?.....Subject?.....

e you a College Graduate?.....Institution, Degrees, Dates?.....

e you a Normal School Graduate?.....Institution, Dates?.....

e you a High School Graduate?.....Institution, Dates?.....

e you a College Student?.....Where?.....Year.....

o you desire graduate credit?.....Where?.....

o you desire college credit?.....Where?.....

ease list courses in which you intend to enroll:

.....

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.....

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Send to Short Course Office, Massachusetts State College, Amherst, Mass.

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

Two- Year Non-Degree Courses in Agriculture and Related Vocations

For twenty years the Massachusetts State College in addition to its degree courses, s been conducting non-degree courses for students who wish to get fundamental ining in some agricultural business. More and more, high school graduates not herwise prepared for college entrance, whose inclinations are towards the practical ld of agriculture, are finding the work of this department of the College well suited their needs.

It will help you in your vocational guidance work in high school to know fully at service we can render you and your students, through the Stockbridge School of riculture.

The work is divided into nine major programs — dairy manufactures, animal sbandry, poultry, floriculture, horticulture, pomology, vegetable gardening, wild- e management, and foods and food processing, for hotel and restaurant work, one of ich is selected by the student, depending on the job for which he wishes to secure ining.

No entrance examinations are required. Minimum age seventeen years; minimum hooling eighth grade. Two hundred and eighty students were enrolled in 1937. Ninety r cent are high school graduates.

The first year consists of six months' study at the College and six months of quired placement training, under the supervision of the College. During the place- nt period the student is expected to learn much of the practical side of his particular cation. He is recommended to a position. These positions are on farms, in dairies, enhouses, poultry plants, hotels. The nature of the position depends on the student's rticular objective.

The second year consists of eight months' study at the College. On the com- tion of the course a diploma is granted. Tuition is $50.00 a semester to residents the State. Semester begins October 3, 1938.

For complete booklet describing program write to Director of Short Courses, assachusetts State College, Amherst, Mass.

Bulletin

MASSACHUSETTS STATE COLLEGE

Nature Guide School

1938

Bulletin

MASSACHUSETTS
STATE COLLEGE

Nature Guide School
1938

A letter to you:

Dear Friend:

Here is the Nature Guide School catalogue. If no letter accompanies this booklet, it means that the answer to your query is in this pamphlet. Read it through carefully. If you are interested in becoming a nature guide, you will find herewith the story of an educational experiment which has far reaching implications.

You may be doing a real service by handing this booklet to a prospective nature leader.

Remember that each camping unit is limited to fifty individuals. An early registration will assure you a place.

Yours for getting outdoors,

Wm. S. Vinal
"Captain Bill"

Director

Amherst, Massachusetts

LUME XXX MARCH, 1938 NUMBER 3A

lished eight times a year by Massachusetts State College, January, February, March, April, , June, October, November. Entered at Post Office, Amherst, Mass., as second-class matter. lication of this Document approved by the Commission on Administration and Finance.

—3-'38. No. 3472

1938 CALENDAR*

Saturday afternoon, June 18 . . . Pre-Camp School for Nature Leaders Ope
Sunday afternoon, June 26 . . . . . State Conservation Camp Ope
Saturday morning, July 2 . . . . Pre-Camp School for Nature Leaders Clos
Tuesday afternoon, July 5 . . . . . Six Weeks Camp Ope
Wednesday morning, July 6 . . . . . Class work begins at 8:30 A
Saturday, July 9 . . . . . Nature Guide Service starts in State Pa
Sunday morning, July 10 . . . . . State Conservation Camp Clos
Sunday afternoon, July 10 . . . . . Middlesex County Camp Ope
Monday evening, July 11 . . . . . Initiation Ceremony at the Council Ri
Sunday morning, July 24 . . . . . Middlesex County Camp Clos
Sunday afternoon, July 24 . . . . . Worcester County 4-H Camp Ope
Sunday morning, July 31 . . . . . Worcester County 4-H Camp Clo
Saturday noon, August 6 . . . . . Summer Session, Buffalo Steak Ro
Sunday noon, August 7 . . . . . Federated Garden Club Week Op
Thursday night, August 11 . . . . . Annual WhoopNa
Friday afternoon, August 12 . . . . . Nature Guide School Clo

*No regular student is accepted for less than a week.

A registration fee of $2.00 will be charged after June 25.

Wanderlust

*****I know not where the white road runs, nor what the blue hills are,*
But man can have the sun for friend, and for his guide a star;
And there's no end of voyaging when once the voice is heard,
For the river calls and the road calls, and oh, the call of a bird!

* * * * * *

And come I may, but go I must, and if men ask you why,
You may put the blame on the stars and the sun and the white road and the sky!

—Gerald Gould, in Stevenson's "Home Book of Verse"

NATURE GUIDE SCHOOL STAFF

Officers of Administration

gh P. Baker, D. Oec., LL.D.	President
land H. Verbeck, B.S.	Director of Summer School
d C. Kenney	Treasurer

Faculty

lliam G. Vinal, Ph.D.	Director of Nature Guide School and Professor of Nature Education
rvey L. Sweetman, Ph.D.	Assistant Professor of Entomology
llard G. Patton	In charge of Handcraft
rry D. Pratt, B.S.	In charge of Water Front
ve Sweetman, M.S.	In charge of Museum
ne Lash, B.S.	In charge of Camp Music
na P. Patton	In charge of Dining Hall
ie Hale Vinal	Camp Mother
ry B. McClelland	Camp Nurse
rley A. Leland, B.S. Agr.	In charge of State Conservation Camp
ert C. Comey	In charge of Southern Middlesex County Camp
n O. Marshall, B.S.	In charge of Worcester County Camp
le H. Nodine, M.Ed.	Assistant State Club Leader
rguerite Dolliver	Camp Secretary

Visiting Instructors

rles P. Alexander, Ph.D.	Professor of Entomology, M.S.C.
rge L. Farley, M.S.	State Club Leader
lliam F. Harlow, Ph.D.	Professor of Wood Technology, New York State College of Forestry
mond J. Kenney	Recreation Supervisor, State Department of Conservation
nie Stebbins	Supervisor of Nature Study Emeritus, Springfield Public Schools

Other noted naturalists will be invited to speak at the camp fire and to lead trips afield.

PROGRAM

The Pre-Camp School for Nature Leaders

This two weeks session has been specially arranged for leaders who expect serve this summer as nature counselors in summer camps, as nature leaders playgrounds, or who expect to direct nature clubs or day camps. It comes at t interval between school and camp. The Nature Guide School is so located th many students will be able to take advantage of the course while en rou to their summer's work. Emphasis will be placed on a review of the birds, tre flowers and other phases of nature often dealt with in camp and also on the methc which are peculiarly fitted to making these activities successful for group work a under informal settings. The experiences described for the six weeks' course c offered here except, of course, in an abbreviated and more concentrated form. T total expense for the two weeks, June 18 to July 2, is $30.00.

The State Conservation Camp

This is a two weeks meeting of Junior Conservationists and Naturalists who w to improve their ability to lead out-of-doors and who would like practical experier in conservation. Most of the campers for this period are members of 4-H Clu Further details may be obtained by writing Mr. Harley Leland, Junior Extensi Office, Massachusetts State College, Amherst. The total expense for this camp fr June 26 to July 10 is $14.00.

The Worcester County 4-H Camp

This camp for members of the 4-H Clubs in Worcester County has been schedu from July 24 to July 31. Information regarding this camp may be obtained fr Leon O. Marshall, County Club Agent, Worcester, Mass. The expense for the we for 4-H members is $7.00.

Southern Middlesex County 4-H Camp

This camp will be in session from July 10 to July 24 and is for boys and girls this county. Details about the camp may be obtained from Albert C. Comey, U Customs Service, Boston, Mass.

Federated Garden Club Week

The week of August 7 to 14 has been reserved for garden club members w would like to get into the open together. Opportunity will be offered for all kind nature studies and recreation. All the activities of the Nature Guide School will available. The total cost for the week is $15.00.

LOCATION

The Nature Guide School of Massachusetts State College is most fortuna located in the buildings of the discontinued C.C.C. camp in the Otter River S Forest (see map page 14) just east of the Berkshire-Taconic about midway of great Appalachian Mountain system in the sweep from Newfoundland to Alaba Less than fifty miles as the crow flies from the tri-state corner of Massachus Vermont and New Hampshire, it is in the heart of the camping world. Located the Carboniferous plateau of Worcester County, within signal fire distance of chief of Monadnocks just over the New Hampshire border, and a short drive f the great scenic beauty of the Connecticut Valley, it offers as rich a variety to rock and mineral collector as can well be imagined.

In the Connecticut Valley may be seen the famous trails and footprints c diverse horde of ancient creatures up to and including the dinosaurs. The g whalebacks or drumlins of Northfield and the abundant lakes are monuments to visit of the glacier. Who has not read about how the Mohawk Indians crossed mountains into Massachusetts to raid the scattered farms and villages?

he Mohawk Trail Highway (U. S. Route No. 2) passes five miles to the south of
cmp. The Daniel Shays Highway (U. S. Route 202) which penetrates the Otter
R:er State Forest is picturesque and winding.

he area is also the center of water supplies, power dams, flood control and land
u projects, outstanding parks, "town forests," and highway beautification en-
d vor, all of which are mentioned frequently in present day literature. It is, further-
m e, near a college center. Smith, Williams, Holyoke, Amherst and Massachusetts
S e are within a short ride. Nature Guide School markers blaze the way to Camp,
w ch is in a secluded corner of the Otter River State Forest.

Tenting on Otter River State Forest

tter River and Millers River form one of the two large drainage systems heading
fa pack on the Worcester Plateau. When the glacier formed a dam across the mouth
of Millers River where it emptied into the Connecticut the water backed up to form
"Winchendon Lake." When the ice lobe receded the waters were again admitted
di ctly into the Connecticut leaving picturesque hanging valleys. The Nature
G de School is pleasantly situated on this old glacial lake bottom in Massachu-
se s' first state forest. The plantings are now large enough to harbor wild game,
"c er yards," and the wild life that interest naturalists. The local forest supervisor
ar his domain of forests, wild life, and seedling nurseries are at our disposal.
ost Office: Winchendon R.F.D. No. 2.

INTRODUCTION

uring the last few years, nature recreation has developed more than a decade
in dvance of expectations. For example: 142 City Parks have varied activities in
na re recreation; 101 cities are maintaining 270 nature trails. States like Indiana
ar New York and cities like Pittsburgh, Cleveland, and Cincinnati are providing
a ature guide service for the public. Federal Recreation-Demonstration Projects
ar converting thousands of acres of submarginal land into great playgrounds and
cc ping areas. Land zoning is bringing about wild life sanctuaries. Thousands of
dc ars are being spent on city parks. Wild life inventories, Friends of Native Land-
sc pe, Youth Hostels, Walk-a-Ways Groups and a hundred and one related organi-

zations are being born. Our outdoor school rooms in the form of playgrounds, cam and parks are here.

If the outdoor program in nature education is to be commensurate with the phy cal investment being made in these new recreation areas, there must be leadersh training and an adequate vision of an enriching program. This is the "reason-being" of the Nature Guide School of Massachusetts State College. It has be organized for the training of:

1. *Teachers* who wish to enrich their program.
2. *Playground Leaders* who are interested in directing nature programs or clubs.
3. *4-H Leaders, Scout and Camp Fire Naturalists* who would strengthen the "Natu phase" of their activities.
4. *Nature Counselors* for summer camps.
5. *Community and Park* nature guides.
6. *Parents* who wish to be prepared to meet the nature problems in their own fami
7. *Garden Club and Nature Club* members who are interested in nature culture.
8. *Museum workers* who are interested in extending their educational program to outdoors.

The Nature Guide School is open to 4-H boys and girls and to adults who hav genuine interest in nature study and who have the equivalent of a high sch education.

Acknowledgment

The Nature Guide School wishes to thank Ernest J. Dean, Commissioner of Department of Conservation of the Commonwealth of Massachusetts, for extend the facilities of the state forests and for cooperating in arranging the program activities.

The Nature Guide School is a Training School in Conservation Leadership

In June, 1937, Dr. J. W. Studebaker, United States Commissioner of Educat called a conference on Conservation Education. The State of Wisconsin has decla a state law by which every school grade from the kindergarten through col shall teach Conservation. There are 114 school forests in Wisconsin. The first was started in 1928. In 1936, conservationists realized that wild life had reac such a state of disaster that they called the first North American Wild Life Con ence at Washington. All are agreed that if we are to save the forests and wildlings, that there must be conservation education. The weakest chain in c servation education is the lack of leadership.

Conservation is not conversation. It is not a subject or a textbook for recitat It is something to be lived, to be practiced. And the only laboratory for such prac is in a forest area where a conservation program is at work. Fortunately, the Mas chusetts Department of Conservation has a forestry program which is being car out in connection with the recreation and wild life programs. Here hundred acres have been improved by thinnings and release cuttings, thousands of seedli have been planted. Within visiting distance are fish hatcheries, game farms, varied projects of the Civilian Conservation Corps. Because of these potentiali of the state forests in the great vacation land of the Berkshires, where public ca ing grounds and picnic facilities are provided, Otter River was selected a strategic point for leadership training. Students will return home, not with fo ideas about conservation, but with the benefit of actual experience and par pation under expert leadership.

Equipment

The Nature Guide School is located in a discontinued C.C.C. Camp. It is an provided with buildings: Four dormitories for men, women, boys and girls, Di Hall with modern equipment, Recreation and Theatre Building, Infirmary, Museum and lecture hall open to public, handcraft and museum work shop.

he Camp drinking water is supplied by four driven wells.

here is a private sandy pool approximately 50 ft. by 20 ft. with a continuous
pply of new water from Priest Brook although more experienced swimmers may
h to use Beaman's Pond and Bath House.

here are ample play areas and opportunity for gardening.

Priest Brook Picnic Grounds

PLAN OF COURSES

ne four-year rotating plan of course material is as follows:

		1938	1939	1940	1941
ridays 8:30	8:30 10:30 M.&W.	Birds	Insects	Flowering Plants	Trees
10:30	10:30 12:30 T.&T.	Ponds & Streams	Vertebrates	Gardening	Non-Flowering Plants
9:30	8:30 10:30 T.&T.	Ecology	Physiography	Geology	Forestry
11:30	10:30 12:30 M.&W.	*Camp Nature Councilors	*4-H Clubs	*Scouting	*Junior Izaak Walton League
		Practicum	Practicum	Practicum	Practicum

All students are expected to take the courses in leadership.

Students may enroll at the beginning of any one of the four years and continu until the certificate is earned.

Each summer students should elect the two courses that best serve their needs. It will not be possible for students to carry more than 3 courses per summer term

All courses will be for six weeks—5 hours per week—and 2 hours' credit pe course, or a total of 6 hours' credit.

All courses meet in the morning for 2 2-hour periods and 1 1-hour period whic comes on Friday morning. These are substantial field courses designed to prepar for outdoor leadership. The theme of each course includes identification, lif histories, and field observation.

Conservation is emphasized in every course. In Forestry, for example, one actual learns the techniques of forest practice that may be used with Juniors.

Handcraft. Instead of a separate course in handcraft, a list of objects that one mc make at the Craft Shop is provided. In Bird Study, for instance, one may make bi houses, feeding shelters, suet holders, banding traps, bird baths, etc. Each cour will require a certain minimum of hand work. A handcraft leader will be ready assist. Materials will be sold at cost.

Recreation. Each course will stress the opportunity for nature games and oth recreational activities.

Appreciation. Methods of utilizing materials for appreciation are stressed.

Students should bring a goodly assortment of reference books for the two co tent courses that they plan to elect.

In general, a student who has had a good field course in one content cour should elect the other two.

How long does it take to become a nature guide? This is equivalent to sayi "How long will it take me to learn to play the piano?" It depends on your abili interest and experience. As a rule, the more field work and the more experien in leadership that you have had, the shorter the time it will take. In general, it estimated that four summers will prepare the average college student.

Practicum. This is a practical course in which a student selects a research probl that is related to his major field and works it out at camp. It must be specia arranged in advance. Only advanced students who are reasonably qualified in t of the three content courses offered are eligible to take the Practicum course. A member of the staff may be selected as adviser. The problem might require f summers. "Education through Nature Trails" is a sample study-problem.

Credits for other Institutions. Students seeking transfer of credits to other colle and institutions should make arrangements with their own college. Approval credit must be obtained from Nature School Director before registration.

Recreational Activities for Afternoons

The fabric of Nature Guiding is woven from two kinds of threads. The "w threads" may be thought of as the four-year plan of courses. They are the acade threads which give technical substance to the finished product. The "woof threa are sometimes known as extra-curricular experiences (non-credit in college). following enriching activities or "woof threads" will interweave with the acade threads and are considered an important part of the equipment of a well-balan program for Nature Guide training. Recreation, at its best, is education.

It is suggested that students perfect themselves in as many of the follow outdoor arts as possible. These experiences are constantly available. With summers of practice, one should become proficient in all these fields. Select acc ing to your needs by numbering the squares.

☐ ***Swimming.*** Outdoor swimming with a competent Red Cross Instructor is availa Nature Guides should become proficient in this important art.

Camp Fires will be a regular feature. Prominent naturalists will speak. There will ample opportunity for trying your skill at story telling, campfire songs and amatics.

Boating. Boats are available for use on the river. Instruction is offered in the mentary skills of rowing.

Pioneering. This activity is offered for those who wish to have actual experience camping. Tents and other outdoor equipment are available. The 2000 acres of ate forest, some in wilderness areas, offer an unparalleled opportunity.

Horsemanship. Horses are available to students at a special rate. The camp is on famous Cape to Berkshire Bridle Trail.

Canoe Trips. Otter River and Millers River, which empty into the beautiful nnecticut, offer unlimited opportunities for exploration with canoes. The best y to become "Commodore" is to be a "Voyager" of experience.

Hosteling. Northfield is the Youth Hostel Capitol of America. With a pack on your ck you may be "on the trail" in a jiffy. There is a loop of 76 Youth Hostels approxiately 15 miles apart, running through the Green and White Mountains. The Youth vement will appeal to you immensely. The best way to become acquainted with s to hike or bike over its trails.

Fishing. If a brook or lake beckons you to fish, you may stray as far as you wish the State Forest. You will want to know the elements of fly fishing so as to be a ular guide. Rainbow and brown trout abound in Beaman's Pond. The open sea- is from May 1 to July 31.

Mountaineering. Mt. Grace, with its 1625 ft. elevation, numerous trails including trails, toboggan slide, and snow shoe trail, available as foot trails in the summer, Adirondack shelters, council fireplaces, and fire tower, affords an excellent portunity for the beginning "Mountain Guide." Wachusett and Monadnock are er notable one-day trips.

Hiking. The Otter River State Forest (1881 acres) offers a network of hiking trails n can hardly be paralleled. The great Appalachian trail system passes the front r. Mt. Grace is the second highest peak east of the Connecticut River. Highest ndards in the technique of hiking are insisted upon.

Hunting with a camera. Many of the state forests have been set apart as wild life uges. Exploring the rugged and picturesque Berkshires with a camera is a asure that will not soon be forgotten. The photographic laboratory and willing nds to aid you in nature photography will help you record the pleasant episode a summer at Nature School.

Sundays. There are churches available in nearby villages and cities to meet all eds. The peaceful village of Northfield is famous for its annual summer confer- ces inaugurated by the noted evangelist Dwight L. Moody (1880). Many will ognize this as an unusual opportunity.

The Sunday night gatherings in the "Cathedral of the Woods" at King Philips ck includes singing and a nature talk based on the out-of-doors.

Clergymen will also be invited to speak at Sunday morning services.

Excursions with a Purpose

The Nature Guide School is generously located in regard to meaningful trips for dents of nature study. Short excursions on Wednesday, "cooking out" the evening al, and longer all-day excursions on Saturday, cooking out the noon meal, will a regular feature. These will be arranged in the form of auto-caravan trips much er the fashion of these trips in National Parks. From repeated experiences, dents are usually equipped to plan auto-caravan trips in other communities.

"Autoless" students will be expected to share gasoline expense. Some of the in esting trips available are:

Mt. Monadnock Day. This is an all-day trip. It took a king's decree (1740) to se whether Monadnock should be within the bounds of Massachusetts or New Ha shire. The last wolf hunt there was in 1820. The climb brings one into the Ar realm and companionship with the snow sparrow, white throats, Labrador bearberry, rhodora, mountain sand wort, mountain cranberry, and other inhabit one expects to see above timber line. To repeat the experiences of Thore Hawthorne, Emerson and Channing is one of those unforgettable occasions. Kipl and Lowell also paid tribute to Monadnock. Emerson, at 63, climbed Monadn This trip includes a visit to Camp Merriconn where one may learn more tricks ab making low priced biological knicknacks and visual aids than in any other pl in the United States. The objectives, organization and techniques of mount climbing will be emphasized.

State College Campus Day. Besides visiting one of the most attractive coll campuses, the excursion will include the Mt. Toby Demonstration Forest, the periment Station and the College Farm. On the way we will pass through unspoiled old village of Deerfield and have opportunity to see Bloody Brook, time houses, and visit the Deerfield Museum. The return trip will be by the site the Quabbin Reservoir. The trip carries us along the rich alluvial lands of Connecticut River, past tobacco and onion farms and truck gardens.

Springfield Day. Springfield, with its offerings in Nature Culture, is an outstand American City. School gardens, a trailside museum in Forest Park with a nat guide service, Nature Trails, a progressive civic museum with a new planetari and the Eastern States Exposition grounds of 172 acres and 20 buildings are tinctive educational institutions in the field of nature education.

The Harvard Forest at Petersham is a nationally known experiment station. It done notable work in Gypsy Moth Control. This trip affords an opportunity to v front rank experiments in forestry.

The Boston Trip has many possibilities. The glass flowers at the Museum of C parative Zoology at Harvard are sometimes referred to as the "Eighth Wonder." Arnold Arboretum at Forest Hills is the largest tree park in the world and Children's Museum at Jamaica Plain is in the front ranks of museum educat It is aimed to have this trip supplement the Springfield experience. Those who m the two trips will have a broad picture of Community Nature Recreation.

The Green Mountain National Forest is just over the Hoosac Range into Vermont. Nature Guide School is fortunate in having a national forest at its back door. trip not only gives first hand contact with a beauty spot but with national fo policies in recreation and wild life programs. Fort Ticonderoga and Benning battle field are alluring historical spots.

Fire Observation Tower. The Massachusetts Department of Conservation maint 48 towers for the detection of forest fires. The fire towers on Mt. Grace and Mt. T not only give a wide outlook over the surrounding Berkshires and Connect Valley, but an unprecedented chance to study the scenery with the help of a to graphic map and binoculars. The tower will help students understand the b for topographic maps and the State Land Planning Program. The ranger usu provides a "gorgeous sunset," a rendezvous for a "memorable supper," an "wealth of experiences" at the camp fire. An afternoon at the summit of Mt. Gr is a good educational investment.

LEADERSHIP TRAINING

The Nature Guide School is unique in that it affords many opportunities practice work in nature leadership. Students in various courses and especiall

th "Leadership Courses" will be given group practice work with nature games, fil d trips, museum activities, etc.

he 4-H Club Camps as outlined in the calendar consist of a resident group of 4- boys and girls and their leaders.

he Trailside Museum. One building has been designated as a local museum open to he public. Students will be given experience in teaching service and in museum te niques essential to park service. Short popular lectures explaining local forma- ti s will be given daily.

ature Trails, open to the public, will be maintained at strategic points in the S te Forest. The trails will be serviced by students under guidance.

amp Fires. Public Camp Fires will be held at the Priest Brook Picnic Area under le dership of Nature Guide students. Visiting naturalists will also speak.

ature Trips. Otter River State Forest has 20 acres devoted to recreation, sub- d ided into picnic areas and tent sites at Beaman Pond, Priest Brook, and King P lip's Rock. This is an unusual opportunity for regular guided trips for the public w ch will leave the Parking Area and other points at stated times.

uto-Caravan Trips will be inaugurated wherever interest is shown. These will be a proximately three hour circle trips, the "guide car" leading the way.

amps of the Vicinity. Teams of 3 or more students will visit camps in the vicinity, u on invitation, to put on an afternoon nature program and evening camp fire. T nsportation will be provided by the camp serviced. Requests should be made a far ahead as possible.

pprenticeship camps are those private or organization camps which agree to c perate with the Nature Guide School in leadership training. Students will give t ir services for the remainder of the summer following the close of Nature Guide S ool. The Director of the camp, in return, will supervise the program and evaluate t student's ability as a nature leader. In some cases, the Director may agree to e ploy successful students for the following summer. It is expected that every p spective nature guide will have the opportunity to prove his worth.

mployment Bureau. As far as possible the Nature Guide School aims to place q alified nature leaders in camps, playgrounds, clubs, parks, schools, and scout t ops. Preference will be given to graduates of the School. People seeking certified r ure leaders will need to give us time to train them.

*EXPENSES**

Six Weeks Course for Adults*

T tion for 3 courses or 6 semester hours	$21.00
B rd for six weeks, $1.00 per day	40.00
R om, if 3 in room	7.00
D rmitory, where student has bed in open barracks	5.00
T al expense for dormitory students	69.00

One or Two Weeks Course for Adults*

T tion per week (Admits to all activities)	$ 5.00
B rd for a week, $1.00 per day	7.00
D rmitory (Open barracks) per week	2.00
T al expense for dormitory student per week	15.00

4-H Club Members

B ys and Girls	$1.00 per day

***Explanatory Notes**

Rooms or dormitory space are limited and can be secured by advanced regist tion. A registration fee of $2.00 will be charged after June 25. A single room co $21.00 for the summer whether occupied by one, two or three students. W Treasurer's Office, Massachusetts State College, Amherst, Mass.

Board. No refund is made for absences of less than seven continuous days.

Recreation Fee of $3.00 is required of each six weeks' student without excepti Students coming for less than six weeks pay a recreation fee of $1.00 per we without exception.

Dormitory. By dormitory is meant a C.C.C. Barracks, a large open room.

Tents. There are a limited number of tents which may be rented for $5.00 for t 6 weeks or at the rate of $2.00 per week when available.

Cots, mattresses, and pillows are furnished by the school.

Visitors are welcomed at all times if RESERVATION is made in advance and spa is AVAILABLE visitors may be accommodated as follows: Breakfast .50; Lunch Dinner .70; Sunday Dinner .75-$1.00; Beds $1.00 per night when available.

Bedding. Each student will supply his own blankets, sheets, and pillow cases.

All students must conform to dormitory regulations.

Laundry. Small amounts may be done by students in the camp laundry.

Summer session regulations apply to Nature Guide School as regards credits, fe refunds etc.

SCHOLARSHIPS

Many other organizations, notably Parent Teacher Clubs, Garden Clubs, a Service Clubs, such as the Rotary and Izaak Walton League, are offering schol ships. In this way they are returning to the Community at once leaders who w take initiative in Conservation projects such as 4-H clubs, school forests, nat clubs a nature program in the community park, playground, or camp. For t information of such clubs, the following list of scholarships is suggested:

Scholarship—$15.00—will send a local 4-H Boy or Scout Naturalist to the Sta Conservation Camp from June 26 to July 10. He will retu Sunday, July 10, equipped to assist an adult leader in a co servation program.

Scholarship—$21.00—will pay the tuition for a 6 weeks' course for a teacher or sco leader and will go a long way in enriching his program f next year.

Scholarship—$30.00—will send a local nature leader to camp for the two wee Pre-Camp School. He would return Saturday, July 2, equipp to lead a nature club on the playground or in the neighb hood or at camp.

Scholarship—$69.00—will pay the tuition, board and lodging for the 6 weeks' cours

FANNIE STEBBINS 1938 CAMP SCHOLARSHIPS have been made possible throu friends of Miss Stebbins in cooperation with the American Nature Study Socie The scholarship aims to pay the tuition at Nature Guide School for an outstandi teacher of nature study in the elementary schools. The awarding committee consi of Dorothea Clark, Sara Chase, Elizabeth F. Wossum and Claudia Schmidt of t Springfield Public Schools.

Application for Enrollment*

Name..... Date.....

City or town..... Street..... State

Present School or Occupation.....

Graduate of what high school.....

Graduate of what college..... Class.....

Check the Camp in which you wish to register

Pre-camp Training School.....State Conservation Camp.....

Six Weeks Credit Course.....Middlesex County Camp.....

Worcester County Camp.....Federated Garden Club Week.....

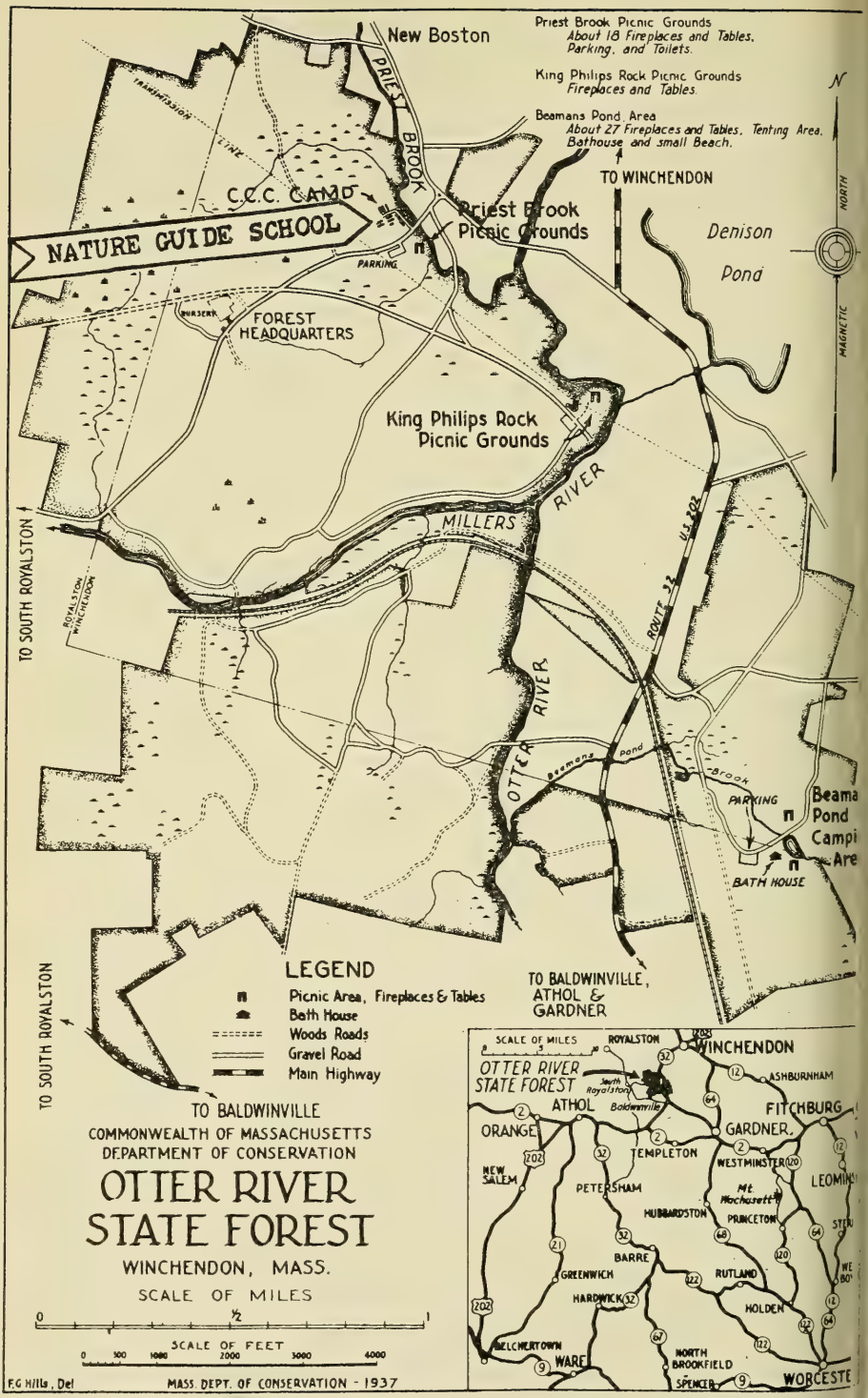
Number the sleeping accommodations in order of preference.

Barracks..... Room in Forester's Building..... Tent.....

Amount of check or money order enclosed..... Whom shall we notify in case of illness? Name..... Address.....

References: Have two of following write a letter as to your moral character, intellectual capacity, and interest in nature study: Teacher, scout leader, employer, doctor, clergyman, camp director.

* Mail this blank to Short Course Office, Massachusetts State College, Amherst, Mass.


New Boston
Priest Brook Picnic Grounds
About 18 Fireplaces and Tables, Parking, and Toilets.
King Philips Rock Picnic Grounds
Fireplaces and Tables.
Beamans Pond Area
About 27 Fireplaces and Tables, Tenting Area, Bathouse and small Beach.
TO WINCHENDON
PRIEST BROOK
C.C.C. CAMP
NATURE GUIDE SCHOOL
Priest Brook Picnic Grounds
PARKING
Denison Pond
N
NORTH
MAGNETIC
FOREST HEADQUARTERS
NURSERY
King Philips Rock Picnic Grounds
MILLERS RIVER
ROUTE 32
TO SOUTH ROYALSTON
ROYALSTON WINCHENDON
OTTER RIVER
Beamans Pond Brook
PARKING
BATH HOUSE
Beama Pond Campi Are
TO BALDWINVILLE, ATHOL & GARDNER
TO SOUTH ROYALSTON
LEGEND
Picnic Area, Fireplaces & Tables
Bath House
Woods Roads
Gravel Road
Main Highway
TO BALDWINVILLE
COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION
OTTER RIVER STATE FOREST
WINCHENDON, MASS.
SCALE OF MILES
0
½
1
SCALE OF FEET
0
500
1000
2000
3000
4000
F.G Hills, Del
MASS. DEPT. OF CONSERVATION - 1937
SCALE OF MILES
ROYALSTON
WINCHENDON
OTTER RIVER STATE FOREST
South Royalston
ASHBURNHAM
ATHOL
Baldwinville
FITCHBURG
ORANGE
GARDNER
TEMPLETON
WESTMINSTER
NEW SALEM
PETERSHAM
Mt Wachusett
LEOMIN
HUBBARDSTON
PRINCETON
BARRE
GREENWICH
RUTLAND
HARDWICK
HOLDEN
PALMERTOWN
WARE
NORTH BROOKFIELD
SPENCER
WORCESTE

Bulletin

MASSACHUSETTS STATE COLLEGE

HIGH SCHOOL DAY

May 7, 1938

MEMORIAL HALL
High School Day registration
headquarters are in this building

Bulletin

MASSACHUSETTS STATE COLLEGE

TWENTY-NINTH ANNUAL HIGH SCHOOL DAY

Saturday, May 7, 1938

An Invitation to

HIGH SCHOOL JUNIORS AND SENIORS, THEIR TEACHERS AND PARENTS

To Visit the College; to Inspect the Campus, the Class Rooms, Laboratories, Dormitories; to Learn First Hand of the Educational Advantages of Massachusetts State

Amherst, Massachusetts

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5m—3-'38. No. 3340

A Letter from President Baker

To Juniors and Seniors in High Schools, to their Teachers ar

Our twenty-ninth annual High School Day at Massacl
year, on Saturday, May seventh.

It always has been a pleasant privilege for me to exte
dents and their parents and teachers to visit with us at the
the occasion is an even more happy one because I am inviti
join with us in celebrating its seventy-fifth year of service

In April, 1863, the Great and General Court accepted
which provided for the establishing of land-grant colleges,
drew up the Charter incorporating the Board of Trustees

The purpose of the land-grant colleges, as set forth
several pursuits and professions of life." And that has bee

Here at the College, on May 7, visitors will have an
committee the educational opportunities which our curric
sion giving a broad and comprehensive training in one of
Social Science, Physical Education, and Home Economics.
Dairy Science, Bacteriology, Economics or in a host of oth

On High School Day visit
classrooms and laboratories. I
day. There will be an exhibit
there will be an entertainment
will conclude the scheduled pro
esting and valuable to you.

Once more may I extend
on Saturday, May seventh

will be observed, this

n to High School stu-
hool Day. This year
our State College and
n of Massachusetts.
e Federal Morrill Act
ate of the union, and
e in Amherst.

as to provide "liberal and practical education . . . in the
sachusetts State College through the years.

ss with Dean Machmer and members of our scholarship
urse of study is divided into six major divisions; each divi-
griculture, Horticulture, Physical and Biological Science,
husetts State may do their "Major" work in Chemistry,
s.

l be escorted by members of the faculty to visit the various
is assistants will be available for interviews throughout the
by students in the military department. In the afternoon
tic group; and a varsity baseball game with Boston College
ll and busy day, and I hope that it may prove both inter-

with the sincere hope that you will visit Massachusetts State

HUGH P. BAKER

STOCKBRIDGE HALL

Here, at one-fifteen on Saturday afternoon
High School Day visitors will be entertained by the college dramatic club.

NTED MILITARY DRILL
HORSE SHOW CONTESTS
BE ON PROGRAM.

Visitors to Massachusetts State College on High School Guest Day may have personal conferences with Dean Machmer, Dean Lanphear, or members of the scholarship committee; at which specific questions regarding entrance requirements, curriculum, and opportunities for financial "self-help" may be answered. Average student expenses, for one year, are between $550 and $600.

Visitors may inspect buildings, classrooms, laboratories, under the personal guidance of members of the faculty, and may learn, thereby, of the nature of courses offered by the six major divisions.

Miss Edna Skinner, adviser of women, and Miss Margaret Hamlin, vocational counselor for women, will be in Memorial Hall until noon, on May 1, to greet women visitors. Mr. Roland Verbeck, director of short courses, in charge of the Stockbridge School of Agriculture, will be in his office in South College from nine until noon to interview applicants for admission and to discuss opportunities offered by the Stockbridge School.

In the afternoon, visitors will be guests at a presentation by the college dramatic club and at an intercollegiate baseball game on Alumni Field. The ball game will officially conclude the High School Guest Day program.

HIGH SCHOOL DAY GUESTS WATCH
A CLOSE PLAY AT HOME PLATE

PROGRAM

High School Day

Massachusetts State College

Saturday, May 7, 1938

9:00 A.M.—12:00 M.	Registration and inspection of Campus. ALL VISITORS ARE REQUESTED TO COME AT ONCE, ON ARRIVAL IN AMHERST, TO MEMORIAL HALL AND TO REGISTER THERE AT THE INFORMATION DESK. STUDENT INVITATION CARDS ARE HERE EXCHANGED FOR TICKETS ADMITTING TO THE EVENTS OF THE DAY.
9:30 A.M.—10:15 A.M.	Mounted drill and exhibition by the R.O.T.C. unit, under the auspices of the military department, at the riding park south of Paige Laboratory.
10:15 A.M.	Groups of visitors, under guidance of members of the faculty, will leave Memorial Hall to visit classrooms and laboratories. Visitors should be at Memorial Hall promptly at 10:15.
11:30 A.M.—1:00 P.M.	Lunch may be secured at the college cafeteria, Draper Hall, at moderate cost.
1:15 P.M.	A presentation by the Roister Doisters, college dramatic club, Stockbridge Hall.
4:00 P.M.	Varsity baseball game, Massachusetts State vs. Boston College. Alumni Field.

FROM 9:30 A.M. UNTIL NOON, AND FROM 1:30 P.M. UNTIL 4:30 P.M.
DEAN MACHMER AND DEAN LANPHEAR
AND
MEMBERS OF THE SCHOLARSHIP COMMITTEE
WILL BE IN MEMORIAL HALL
FOR
PERSONAL INTERVIEWS

Note: The Program is so arranged that most visitors may return to their homes on Saturday evening. However, for those who wish to remain in Amherst on Saturday night, rooms in the homes of townspeople may be secured at $1.00 per person. Reservations may be made by addressing the Field Secretary, Massachusetts State College; but, requests for reservations should be made two weeks in advance.

For extra copies of this booklet, and for invitation cards, address the Field Secretary, Massachusetts State College.

Bulletin

MASSACHUSETTS STATE COLLEGE

COMMENCEMENT

- 1938 -

The President's Letter

To Alumni of Massachusetts State College:

As this is the Diamond Jubilee Year of the College, it gives me special pleasure t extend cordial invitation to Alumni and friends of the College to attend and have pa in our 68th Commencement Exercises. Throughout the Commencement Exercises spec attention will be given to celebrating our 75th Anniversary. The Annual Alumni Me ing in Memorial Hall, followed by the Alumni Luncheon in the Drill Hall will be, fact, a Birthday Celebration and Party.

It is also a very pleasant privilege to invite Alumni of the College to attend t other exercises of the Commencement period. We are very fortunate this year in havi as our guest speakers, Reverend M. J. Ahern of Weston College for the Baccalaure program, and Dr. James L. McConaughy, President of Wesleyan University, for t graduation exercises.

The Commencement Exercises of this year promise to be particularly interesting a worth while and I sincerely invite and urge you to come and join with us in the ce bration of this Commencement, which marks the 75th Anniversary of your Alma Ma

Cordially yours,

Hugh P. Baker.

The College Pond — About 1895

The Campus in June

Program

Friday, June 10, 1938

2:00 P. M. Annual Spring Horse Show, Riding Park.
8:00 P. M. Flint Oratorical Contest, Memorial Hall.

Saturday, June 11, Alumni Day

8:30 A. M. Roister Doister Breakfast, Draper Hall.
0:00 A. M. Annual Meeting, Associate Alumni, Memorial Hall.
2:00 M. Alumni Luncheon and Speaking Program, Drill Hall.
2:45 P. M. Alumni Parade to Ball Game.
3:30 P. M. Varsity Baseball Game with Amherst, Alumni Field.
Following Game Half Hour Concert on Chime.
6:00 P. M. Fraternity and Class Reunions as arranged by organizations.
9:00 P. M. Roister Doister Play, "Ralph Roister Doister". An anniversary production

Sunday, June 12, Baccalaureate Sunday

9:00 A. M. Academics and Varsity Club Breakfast Meetings, Draper Hall.
1:00 A. M. Fraternity and Class Reunions as arranged by organizations.
4:30 P. M. Baccalaureate Service at Rhodondendron Garden.
Address by Rev. Michael J. Ahern, S. J., S. T. D.
Weston College.
5:30 P. M. President's Reception at President's House.
8:00 P. M. Concert on the College Chime.
8:30 P. M. Senior Class Day Exercises, Rhododendron Garden.

Monday, June 13, Class Day

0:00 A. M. Semi-Annual Meeting of the Board of Trustees.
4:00 P. M. Academic Procession from Fernald Hall.
4:30 P. M. Graduation Exercises, Rhododendron Garden
Address by James L. McConaughy, Ph.D., LL.D., L.H.D.,
President of Wesleyan University.
8:00 P. M. Sophomore-Senior Hop, Drill Hall.

*If weather is inclement these exercises will be held in the Physical Education Building.

ALUMNI REUNION PROGRAM

SATURDAY, JUNE 11

10:00 A. M Annual Meeting of the Associate Alumni, Auditorium, Memorial Hall.

12:00 M. Alumni 75th anniversary luncheon, Drill Hall. A caterer (table service) will serve the luncheon, to which Alumni, Alumnae wives, husbands, and children are cordially invited.

1:15 P. M. 75th Anniversary program. Drill Hall.

2:30 P. M. Concert by College Band on west lawn of Memorial Hall.

2:45 P. M. Formation of Alumni Parade, Memorial Hall. Al Cook '28, Alumni Marshal.

3:30 P. M. Varsity Baseball Game — Amherst vs Massachusetts State, Alumni Field.

Following the game: a half hour chime concert.

Class suppers, fraternity meetings, Roister Doister play.

REUNION CLASSES

1878 (*60 year class*) Dr. Charles Sumner Howe, North Amherst, Mass., secretary.

1883 (*55 year class*) Dr. Joseph B. Lindsey, 101 Lincoln Ave., Amherst, Mass., secretary.

1888 (*50 year class*) Herbert C. Bliss, secretary, 38 Third St., West Barrington, R. I. Headquarters, Room 3, Memorial Hall.

1893 (*45 year class*) Fred A. Smith, Danvers, Mass., secretary. Headquarters, Library, Physical Education Building.

1898 (*40 year class*) Willis S. Fisher, 108 Ontario St., Providence, R. I., secretary. Headquarters, Room 2, Memorial Hall.

1903 (*35 year class*) A. V. Osmun, Amherst, Mass., Gerald D. Jones, North Amherst, Mass., Dr. W. E. Tottingham, 2206 West Lawn Ave., Madison, Wis., in charge of plans. Headquarters, Room 7, Memorial Hall.

1908 (*30 year class*) Roland H. Verbeck, secretary, Amherst, Mass. Headquarters, Bowditch Club House.

1913 (*25 year class*) Benjamin W. Ellis, Marshfield, Mass., secretary; Harold M. Gore, Amherst, Mass., chairman, reunion committee. Headquarters, Thatcher Hall.

1918 (*20 year class*) M. O. Lanphear, Amherst, Mass., secretary. Headquarters, Paige Laboratory.

1923 (*15 year class*) Wilbur H. Marshman, 43 Fairfield Ave., Westfield, Mass., president. Headquarters, Room 8, Memorial Hall.

1928 (*10 year class*) Betty Morey Kay, 42 Winthrop Ave., Reading, Mass.; Jack Quinn, 240 Halstead Ave., Harrison, N. Y., in charge of plans. Headquarters, Alumni Room, Memorial Hall.

1933 (*5 year class*) Benton P. Cummings, R.F.D., Amherst, Mass.; Walter Maclinn, Amherst, Mass.; Sylvia Wilson, 15 Gothic St., Northampton, Mass., in charge of plans. Headquarters, Room 1, Memorial Hall.

1935 (*3 year class*) Ruth Lindquist, Duxbury, Mass., Ray Evans, Box 154, Charlemont, Mass., in charge of plans. Headquarters, Room 4, Memorial Hall.

1937 (*1 year class*) Al Gricius, Amherst, Mass.; Dave Rossiter, 11 Magnolia St., Malden, Mass., in charge of plans. Headquarters, Physical Education Building.

The Alumnae Tea will be in charge of Ethel Blatchford '34 and will be served in Memorial Hall, main lounge, at 4 o'clock on Saturday afternoon, June 11

ALUMNI REGISTRATION HEADQUARTERS, MEMORIAL HALL.

VOLUME XXX MAY, 1938 NUMBER 5

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Publication of this Document approved by the Commission on Administration and Finance.
4500-5-'38. No. 3817

Bulletin

MASSACHUSETTS STATE COLLEGE

STOCKBRIDGE SCHOOL OF AGRICULTURE

1938-1939

Bulletin

MASSACHUSETTS STATE COLLEGE

Stockbridge School of Agriculture
1938-1939

The two year course in practical agriculture at Massachusetts State College is known as The Stockbridge School, named after an early president of the College. Included herein are descriptions of the various courses offered, information concerning expenses, enrollment, regulations, etc. On the last two pages will be found forms for application and certificate of citizenship.

STATE COLLEGE BULLETIN
Amherst, Massachusetts

Volume XXX | June, 1938 | Number 6

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Publication of this Document Approved by the Commission on Administration and Finance
3500. 5-'38. No. 4102.

CALENDAR

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

1938

October 3, Monday ..... Freshman Registration
October 4, Tuesday ..... Senior Registration
October 5, Wednesday ..... First semester begins for Seniors
October 12, Wednesday ..... Holiday, Columbus Day
November 11, Friday ..... Holiday, Armistice Day
November 23-November 28, Wednesday, 12:00 M.-Monday, 8:00 A.M. ..... Thanksgiving Recess
December 17-January 3, Saturday, 12:00 M.-Tuesday, 8:00 A.M. ..... Christmas Recess

1939

January 28-February 1, Saturday-Wednesday ..... Final Examinations
February 1, Wednesday, 5:00 P.M. ..... First semester ends
February 6, Monday, 8:00 A.M. ..... Second semester begins
February 22, Wednesday ..... Holiday, Washington's Birthday
April 1-10, Saturday, 12:00 M.-Monday, 8:00 A.M. ..... Spring Recess
April 19, Wednesday ..... Holiday, Patriot's Day
May 26-29, Friday-Monday ..... Final Examinations
May 30, Tuesday ..... Holiday, Memorial Day
June 2-5, Friday-Monday ..... Commencement

THE TRUSTEES

Organization of 1938

Members of the Board

	Term Expires
David H. Buttrick of Arlington	1939
David J. Malcolm of Charlemont	1939
John F. Gannon of Pittsfield	1940
Davis R. Dewey of Cambridge	1940
Joseph W. Bartlett of Boston	1940
Philip F. Whitmore of Sunderland	1940
John Chandler of Sterling Junction	1940
Frederick D. Griggs of Springfield	1940
Nathaniel I. Bowditch of Framingham	1940
William C. Monahan of Framingham	1940
James T. Cassidy of Boston	1940
Mrs. Elizabeth L. McNamara of Cambridge	1940
Mrs. Katherine G. Canavan of Amherst	1940
Joseph B. Ely of Westfield	1940

Members Ex-Officio

His Excellency Charles F. Hurley, *Governor of the Commonwealth.*
Hugh P. Baker, *President of the College.*
James G. Reardon, *Commissioner of Education.*
William Casey, *Commissioner of Agriculture.*

Officers of the Board of Trustees

His Excellency Charles F. Hurley of Cambridge, *President.*
Nathaniel I. Bowditch of Framingham, *Vice-President.*
Robert D. Hawley of Amherst, *Secretary.*
Fred C. Kenney of Amherst, *Treasurer.*

MEMORIAL HALL

"We Will Keep Faith With You Who Lie Asleep."

Staff

Officers of General College Administration

HUGH P. BAKER, D. OEC, LL.D.
President of the College

WILLIAM L. MACHMER, A.M.
Dean of the College

FRED C. KENNEY
Treasurer of the College

ROBERT D. HAWLEY, M.B.A.
Secretary of the College

BASIL B. WOOD, A.B.
Librarian of the College

ROLAND H. VERBECK, B.S.
Director of Short Courses

STOCKBRIDGE ADVISORY COMMITTEE

President HUGH P. BAKER

Director ROLAND H. VERBECK, Chairman
Director of Placement Training EMORY E. GRAYSON
Professor ROLLIN H. BARRETT
Professor LYLE L. BLUNDELL
Professor ROBERT P. HOLDSWORTH
Professor GRANT B. SNYDER
Professor REUBEN E. TRIPPENSEE
Assistant Professor LUTHER BANTA
Assistant Professor LAWRENCE S. DICKINSON
Assistant Professor RICHARD C. FOLEY
Assistant Professor S. CHURCH HUBBARD
Assistant Professor HARRY G. LINDQUIST
Assistant Professor MINER J. MARKUSON
Assistant Professor RANSOM C. PACKARD
Assistant Professor OLIVER C. ROBERTS
Assistant Professor HAROLD W. SMART
Assistant Professor CHARLES H. THAYER
Secretary ROBERT D. HAWLEY

THE FACULTY OF INSTRUCTION

LORIN E. BALL, B.S. ..... 15 Allen Street
Instructor in Physical Education

LUTHER BANTA, B.S. ..... 21 Allen Street
Assistant Professor of Poultry Husbandry

ROLLIN H. BARRETT, M.S. ..... 15 Eames Avenue
Professor of Farm Management

ETHEL W. BLATCHFORD, B.S. ..... 77 East Pleasant Street
Physical Director for Women

LYLE L. BLUNDELL, B.S. ..... 38 North Prospect Street
Professor of Horticulture

ALAN W. CHADWICK, B.S. ..... Draper Hall
Manager of Dining Hall

MRS. GLADYS M. COOK, M.S. ..... 36 Lincoln Avenue
Instructor in Home Economics

JAMES D. CURTIS, M.F. ..... 55 Mount Pleasant
Instructor in Forestry

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Assistant Professor of Botany

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CHARLES N. DUBOIS, M.A. ..... Montague Road
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Placement Officer for Women

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Assistant Professor of Pomology

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Chief of Laboratory, Poultry Disease Control

JOHN H. VONDELL ..... 80 Fearing Street
Instructor in Poultry Husbandry and Foreman of Poultry Plant

HERBERT E. WARFEL, M.S. ..... North Amherst
Assistant Professor of Zoology

Professor of Poultry Husbandry and Head of Department

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

A Two-Year Course in Practical Agriculture

The Stockbridge School of Agriculture, organized in 1918, is a separate and distinct department of the College providing training of a strictly vocational type in the fields of agriculture and horticulture.

Nine programs of study are offered, one of which must be selected by each student and completed as specified to be eligible for the school diploma. The present list of offerings includes:

Division of Agriculture

1. Animal Husbandry . . . . . (see page 16)
2. Dairy Manufactures . . . . . (" " 18)
3. Foods and Food Processing . . . . . (" " 21)
4. Poultry Husbandry . . . . . (" " 24)

Division of Horticulture

1. Floriculture . . . . . (" " 28)
2. Fruit Growing . . . . . (" " 30)
3. General Horticulture . . . . . (" " 34)
4. Vegetable Gardening . . . . . (" " 35)
5. Wildlife Management . . . . . (" " 37)

Since its organization at the request of the Massachusetts Legislature, the school has registered over 2,000 students, graduated nineteen classes numbering more than 1400 members, and enrolled for the last school year (1937-38) 281 young men and women.

The largest number of students come from Massachusetts, but all the New England States are usually represented in the student body.

The value of this kind of concentrated, technical schooling, aiming directly toward preparation for a definite field of work, is amply demonstrated by the useful careers of our graduates.

General Information

Entrance Conditions:—The school program is open to any student who is seventeen years old or over and who has completed at least an elementary school course or its equivalent. There are no entrance examinations.

The Stockbridge School of Agriculture is not intended for students already enrolled in high schools. Such students should finish the high school course if possible. Students in high schools who wish to take the course should bring a statement either from the principal of the high school or from the parent or guardian, indicating the reasons for such a change.

A graduate of a Massachusetts county school of agriculture or of an agricultural department of a high school in this state, may complete the course for a diploma in one year, if he is recommended by the Director of the school or the agricultural instructor. He must show a satisfactory record of practical experience and training which can be accepted in place of the first year Stockbridge program. This arrangement cannot apply to the Wildlife and Foods programs and rarely to Horticulture and Dairy Manufactures.

How to enroll.—Fill out application blank in back of catalog giving all information requested. Be sure to indicate course you wish to elect. Mail this form, with citizenship certificate in back of catalog, to Director of Short Courses. If application is accepted you will be notified, and certificate of citizenship will be kept on file until you register. In Wildlife and Foods courses where number is strictly limited, notices of acceptance or rejection are sent out after special faculty committees have made their decisions. No fees are required until registration. Registration will be held in Memorial Hall on Monday, October 3, for freshmen, and Tuesday, October 4, for seniors. All freshman students should be on campus from the day of registration until classes open on Thursday to meet required appointments for mental tests, physical examinations, and indi-

vidual photographs for office records, and to have class schedules and individual programs explained.

Instruction.—The instruction is given by the college teaching staff through classroom teaching, laboratory exercises and practical work. The work of the classroom is supplemented by demonstration work in the laboratory, dairy room, greenhouse and stables. It is designed to offer fundamental information, and to establish the underlying reasons as well as the special methods employed in the various operations. The advantages of the college instructors and the college plant with all its resources are thus made available to young men and women electing this type of training.

Credit and Diploma.—In order to obtain a diploma a student is expected to have satisfactorily completed all the work called for in the general course which he has selected. A student failing to pass the requirements of summer placement training, after a suitable job has been assigned him, is not eligible for graduation until this deficiency is made up, and may not be allowed to enrol for the second year, if the Director of Placement Service considers his record to be unsatisfactory.

Graduation Requirement.— No student will be graduated unless all bills due the college are paid on or before the Wednesday preceding graduation exercises. If paid after that date, and otherwise eligible, he may be graduated the following year.

Diplomas and letters of honorable dismissal will be withheld from all students who have not paid bills due the College, or legitimate bills due private individuals.

Seniors who have borrowed from the Goldthwait Loan Fund will have diplomas retained by the College until they have paid up loans in full.

Scholarship Regulations.—At the close of each semester students receive a formal report showing the standings given in the subjects pursued by them.

If a student's semester mark in any subject falls below 60 per cent, he is thereby failed (F) in the subject. He shall be debarred from taking the final examination in that subject and must repeat it with the following class.

If the average of the semester mark and the final examinations is below 60 percent, the student is thereby conditioned (♯).

Student grades will be recorded at the end of the seventh week of each semester and again at the end of the semester. The Faculty Committee will consider all questionable grades after each marking period, and instructors will note on grade reports the names of all students whose work is seriously deficient.

When a student's record indicates failures or uniformly poor work, the Faculty Committee may recommend a close supervision of his work by the faculty adviser in his major course, or, if his scholastic grades disqualify him from further work in the school, he may be asked to withdraw at any time.

A first year student who has deficient scholastic work at the end of the first semester in February shall not be eligible for placement training until his work meets the required standard.

At the end of any semester a student who has a failure in more than one subject or is conditioned in more than two subjects may be dismissed.

RULES AND REGULATIONS

Absences from Class

(1) No unexcused absences will be allowed from classes. (2) All excuses for absence shall be presented by the student in writing, and, if approved by the Director, an excuse card will be granted to be signed by the instructor. Excuse cards must be returned promptly to the office when properly signed. (3) Students presenting excuse cards covering absences are expected to make up all work missed, to the satisfaction of the instructor. (4) Instructors are directed to reduce final grades five points for each unexcused absence occurring on a student's record at the end of any semester. **(5) No excuses will be accepted at the Short Course Office unless presented within two days after the student**

returns to classes. (6) Two tardinesses unexcused shall count as one absence. (7) Absences from classes immediately before or after a holiday are not allowed except by special permission. (8) The Short Course Office requires all students to report at once any illness to the college physician, particularly if absence from class is likely to result from the illness. (9) Students failing to observe these rules are placed on probation, and may be asked to withdraw from the course if further violations occur.

Absences from Examinations or Tests

(1) Any student who absents himself from an appointed examination without sufficient cause shall be given zero thereon. In such case he shall not be entitled to a make-up examination unless the Director so requests. A previously announced test may, at the discretion of the instructor, be regarded as a test or as an examination.

(2) Every absence taken before enrolment (the signing of the registration card by the teacher) in a class will be counted.

Student Expenses

Tuition.—A tuition fee of $50 per semester is charged students, residents of Massachusetts, enrolled in the Stockbridge School of Agriculture. Students who are not residents of Massachusetts are charged a tuition fee of $110 each semester. The tuition per semester, charged persons not citizens of the United States is $110. **Students entering from Massachusetts, unless of voting age themselves, are required to file a statement signed by either town or city clerk, stating that the applicant's parent is a legal resident of Massachusetts.** (See form in back of catalog.)

The necessary college expenses are estimated as follows: Tuition, for citizens of Massachusetts, first year, first semester, $50; second semester (eight weeks only) $25, total $75. Second year, first semester, $50; second semester, $50, total $100. Total cost of tuition for full course, $175.

Students not residents of Massachusetts pay $110 tuition fee first year, first semester, and $55 second semester (eight weeks only). Total tuition, first year $165. Second year, $110 each semester, total $220. Total tuition cost both years, $385.

Other costs are:

	First Year	Second Year	Total
Room in private houses	$72.00	$96.00	$168.00
Board in college cafeteria, weekly ticket 20 meals, $6.50	156.00	208.00	364.00
Laundry	20.00	30.00	50.00
Books, stationery, etc.	30.00	45.00	75.00
Totals	$278.00	$379.00	$657.00
College tuition fee for citizens of Massachusetts	75.00	100.00	175.00
	$353.00	$479.00	$832.00

These figures for board and room are estimates based on prevailing prices and are subject to change when and if conditions change.

Special Taxes Voted by Students

	First Semester	Second Semester
College Athletic Tax	$6.75	
(For freshmen, one-half semester)		$3.00
(For seniors, full semester)		6.75
Collegian Subscription	1.00	.50
Social Union	1.00	
United Religious Work	.25	.25
Stockbridge School Activities	.50	.50
Stockbridge Class Tax—usually	1.00	1.00
The Shorthorn—school yearbook		
Freshmen		3.00-4.00
Seniors		4.00-5.00

1937 Graduating Class

Tuition fees and special taxes are payable at the Treasurer's Office not late than one week after date of registration for each semester.

A student who withdraws from college for any reason before a semester i half completed will have refunded to him one-half the fees paid for that semester but one who leaves after completing more than the half semester will be allowe no rebate of fees.

The placement training period between the first and second year usually en ables a student to earn from $150 to $300 depending upon his skill and genera ability, and the type of work. Of this amount $100 to $200 should be saved t apply to the expenses of the second year.

Prospective students should understand that the above estimates cover ex penses which may be called strictly college expenses, and that there are othe financial obligations voluntarily placed upon students which they should expec to meet. Chief among these are class assessments and taxes levied for main tenance of various organizations, such as the Social Union, Athletic Associatior weekly publications, etc. Such expenses vary from $15 to $30 a year. Ad ditional financial responsibility is also assumed by students joining clubs o entering into other social activities of the college. Besides the amount necessar for clothes and traveling, the economical student will probably spend betwee $300 and $400 for the first year of one and one-half semesters in residence, an $400 to $500 for the second year of two semesters.

Student Aid

Students desiring any form of financial aid from the college including scholar ship, employment, or loan, are required to file applications with the Student Ai Committee not later than June 10 of each year. Incoming freshmen are allowe an extension of time.

These application forms are used to determine the comparative need of th applicants and are passed on by the Student Aid Committee. No student eligible for any kind of financial assistance from the College unless he or she h filed the required form and has been certified as deserving by the Student Ai Committee. Application forms may be secured at the Placement Service Offic South College.

Self Help.—It is recommended that no new student enter without havin at least $250 and preferably $350 with which to meet the expenses of the fir year. **The college does not encourage students to enter without money in th expectation of earning their way entirely.** The student will find it better eith to work and accumulate money before coming to college, or to take more tha two years in completing his course, or, instead, to borrow money sufficient t carry him through. No student should undertake work that interferes with h studies, and students should understand that, owing to the large number applications for employment, no one may receive a large amount of work at th college. A number of students find opportunities for earning money witho depending upon the college to furnish them with work.

First year students should not risk failure in their beginning studies at Stoch bridge by taking on such extra work until they have, at least, tested themselv in the study program of the first semester. Certainly, it is advised to proce cautiously in combining both extra work and athletics at the same time, if yo scholastic record is at all questionable.

N.Y.A. Student Employment Projects

The College has been granted student employment funds by the Federal Go ernment since the adoption of the program. The policy of the Federal Admin tration cannot be predicted, but it is safe to assume that as long as stude relief projects are in effect this College will be a participant. The type of wo to which students are assigned under N.Y.A. projects consists of the followin Clerical and office, library and museum, laboratory and research assistance, rea ing and grading papers and all other or miscellaneous types.

In addition to the college projects, community projects are organized consist- of the following types of work: Education, recreation, health and welfare d other miscellaneous types.

The rate of pay is 30 cents per hour. The positions are based on the average rning capacity of $15 per month. During the past college year twelve per- nt of our students were assigned to positions under this project.

Special consideration is given to new students under these projects, for while general college policy does not encourage the new student to seek employ- nt, one of the conditions under which the College participates in the N.Y.A. ojects is that new students receive their pro rata share.

Rooms

Dormitory rooms are available only to students of the four year college course. ivate homes in the town furnish the only source of rooms for Stockbridge idents.

Rooms are inspected by the student health officer and students are expected make their own rooming arrangements from a list of approved places avail- le at the Short Course Office.

General Exercises

Assembly exercises are held weekly on Wednesdays, 11:00-12:00 M., and ve to bring together all Stockbridge students for a general program dealing th matters of interest to the College and the School. Among speakers who pear from time to time are the President of the College, members of the Col- ge staff, and occasionally other men who have interesting subjects to present. is weekly assembly also enables announcements concerning students and stu- nt affairs to be presented, and permits class presidents to make advance servations for business meetings at least once a month when necessary.

Student Activities

A large number of student organizations furnish opportunity to students for rk and leadership.

The Massachusetts State College Social Union was established about fifteen ars ago. All students become members of the Union by paying a small fee, d in the fall and winter months the Union gives a series of entertainments, e to students and faculty. Memorial Hall is the center of student activities d contains offices for the various student organizations, including the Stock- idge School Student Council. On the first floor are located a lounging room, e Memorial Room, and the offices; in the basement, bowling alleys, pool and ng pong tables; and on the second floor an auditorium for meetings and nces. This building was erected by the alumni, students, faculty, and friends honor of the fifty-one "Aggie" men who gave their lives in the World War.

The Stockbridge School Council is composed of representatives of the first d second year classes. This body serves as a general committee on student vernment and helps to maintain the best traditions and customs of the School.

A student yearbook called "The Shorthorn" is published annually by the mem- rs of the graduating class, and is usually issued in June. All students subscribe it.

For those students who play musical instruments there is some opportunity ith the College Orchestra and the College Band.

In the place of fraternities the faculty have authorized social organizations lled "clubs" in the Stockbridge School. There are two such organizations in e student body, the A. T. G. Club and the Kolony Klub, both owning houses, rving as social and residential centers for their groups.

Athletics and Physical Education.—The School has its own separate athletic rogram with regular schedules in football, basketball, ice hockey, cross-country nd winter track. Sweaters and insignia are awarded to team members and anagers in these sports. The official insignia is the letter S.

The football team plays a schedule of 6 or 7 games with preparatory school and college freshman teams. The basketball team plays a 10 game schedule; the cross-country team usually runs 3 races, while 2 or 3 meets are scheduled for the winter track squad. Ice hockey affords 6 to 8 games depending on the weather.

Due to the fact that freshmen are on placement training during the spring term which leaves only seniors available, no regular team is maintained in baseball. Men desiring to play are organized into teams and an intramural league is arranged.

This athletic program is entirely under the supervision and direction of the Physical Education Department of the College and coaches are provided for all sports. Instructor Lorin E. Ball, director of the Stockbridge physical education work is coach of football, basketball, and has charge of the spring recreation program. Assistant Professor Llewellyn L. Derby, coach of the varsity track team, has charge of the cross-country and winter track squads.

All students are urged to participate in some sport each semester, but first year students should be sure all studies are well maintained. No squads are reduced by eliminating the inexperienced players and everyone is given an opportunity to play in games. The football squads for the past two years have consisted of approximately 50 candidates. Games have been scheduled for both the second and third teams so that every man on the squad has participated in an outside scheduled game. Both the first and second teams in basketball have regularly scheduled games and an intramural league schedule is arranged for those not playing on the first squad.

Every care is exercised to guard against men overtaxing their strength in any sport or game to the detriment of their health. No man whose physical condition is at all questionable is allowed to play on the teams. A careful check is maintained by required physical examinations for all students given by the college physician at the opening of the school year. A second examination is made of each man before permission is granted to participate in any sport.

Students also subscribe to the college varsity games and have attendance privileges for varsity sports on the campus.

Class work in physical education for men not on athletic squads is required for both seniors and freshmen during the first semester. This consists of class periods a week. The object of this counse is to give the men some knowledge of games which may be of value to them in after school days, as well as to give every man an opportunity to develop sufficient control over his body to enable him to get pleasure from physical activities and to establish correct health habits.

The freshmen receive instruction in soft ball, touch football, soccer, golf and swimming. Men may elect football or cross-country, instead of the regular class work. The seniors take up volley ball, badminton, archery, and swimming. They may also elect football or cross-country. The classes are organized into teams which compete against each other with much rivalry. Students are expected to wear old clothes during the play period, and shower baths are required at the close of each class period.

A physical education building containing a swimming pool, a great indoor cage 150 by 180 feet for all kinds of sports and games, and complete locker room and shower bath facilities provide ample equipment to carry out this program. Individual equipment is supplied to all members of the football, hockey, basketball, cross-country, and track squads.

STUDENT RELATIONS

The customary high standard of college men in honor, manliness, self-respect and consideration for the rights of others constitutes the standards of student deportment.

Any student known to be guilty of dishonest conduct or persistent violation of rules must be reported by the instructor to the Director for discipline.

The privileges of the college may be withdrawn from any student at any time if such action is deemed advisable.

It should be understood that the college, acting through its President or any administrative officer designated by him, distinctly reserves the right not only to suspend or dismiss students, but also to name conditions under which students may remain in the institution. For example, if a student is not doing creditable work he may not only be disciplined, but he may be required to meet certain prescribed conditions in respect to his studies, even though under the foregoing rules his status as a student be not affected. The same provision applies equally to the matter of absences.

Similarly, also, it applies to participation in student activities. Though this will ordinarily be governed by the rules as already laid down, yet if in the judgment of the college authorities a student is neglecting his work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary. Moreover, it may be withdrawn as a punishment for misconduct.

HEALTH SERVICE

The College endeavors to safeguard the health of all students while on the campus and for this purpose maintains a Department of Student Health, staffed by two physicians, two resident registered nurses, and a group of three Infirmary buildings.

1) Physical examination by the Health Service is required of all undergraduate students annually, or more often if indicated. This examination is given to freshmen during matriculation week. *Evidence of a* SUCCESSFUL *smallpox vaccination is required.*

2) The Student Health physicians have offices in the Physical Education Building and in the Out-Patient Building, where they may be consulted during college hours.

3) The Infirmary consists of three buildings, one for bed patients, one for contagious cases, and one for out-patient cases, where the out-patient clinic is conducted daily by one of the Student Health physicians.

4) Students are urged to consult the resident physicians at the first sign of physical disorder, or for even minor accidents. Many severe illnesses and much lost time can be avoided by early or preventive treatment.

5) A Trustee ruling grants free time in the Infirmary — when necessary for treatment — up to seven days in the school year. This free time applies to regularly enrolled undergraduate students only. For time in excess of seven days or for other bed patients, a charge of $2.00 per day is made against the patient.

6) In addition to the charges specified in paragraph 5, the following additional expenses will be charged to the patient.

   (a) *Nurses.* — In case a special nurse is required for the proper care of an individual the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the resident nurse.

   (b) *Professional Service.* — If a student requires continuous medical attention by a physician, he may be required to select a town physician and become responsible for fees charged by that physician.

   (c) *Supplies.* — Special medical supplies prescribed by a physician will be charged to the patient.

   (d) *Laundry.* — Expense for personal laundry or cleaning incurred by students while in the Infirmary will be charged to the individual student.

Goodell Library. — This fine new building completed in 1935 houses the College Library. This library contains one of the best collections in agriculture and related sciences in the country, with especial strength in entomology, botany, chemistry, horticulture, landscape architecture, soil science and animal husbandry, but with considerable collections, also in literature, history, economics, and sociology. There are over 110,736 bound books, and over 50,000 classified pamphlets giving most recent information. The periodical file contains over

500 current magazines, both scientific and popular, and a careful selection of newspapers, together with many periodical publications of learned societies. The Library is unusually rich in files of journals and publications of Experiment Stations and learned societies. The building is open on week days from 8 A.M. to 10 P.M., and from 1.30 to 4.30 and 7 to 9 P.M. on Sundays during semesters and with somewhat shorter hours during vacations and Summer School.

The building is named in memory of Henry Hill Goodell, President of the College from 1886 to 1904 and College Librarian from 1886 to 1898.

AGRICULTURAL OPPORTUNITIES FOR WOMEN

Agriculture is a field in which women have always found some opportunity. There are women farming independently, in all branches of agriculture. As a rule poultry raising, small fruits and vegetable growing and floriculture, seem to offer women an easier opportunity than dairy, stock and general farming. Women are also finding some paid positions which include farm and estate workers and managers, garden service workers and agricultural officers in state correctional institutions.

For the woman or girl whose home is already upon the farm the opportunity is exceptionally good. With the help of an agricultural education there are open to her many means of increasing her own or the farm income. With the knowledge of farm life which she already possesses, and with the possibility of securing occasional help from her family, she may be able to carry on and develop a profitable enterprise of her own. The Stockbridge School of Agriculture will afford to the women who wish to engage in farming the practical training which they will need to fit them for their work, and will open to them new doors of opportunity. The particular problems which women engaged in farming will have to meet, and the special lines of farming in which they will have favorable opportunities, will be considered in a series of conferences.

Women who are interested in taking agricultural courses should correspond with Miss Margaret Hamlin, Placement Officer for Women.

POSITIONS

The College does not guarantee positions to students registered in any of its courses, but through the Placement Service it has an opportunity to recommend students for a large number of positions. A record is kept of each student's work and experience, and of his success in positions for which he has been recommended after he has finished his course. Opportunities for trained men and women, especially those who have had farm experience, are good.

A student desiring a recommendation from the college must meet the following conditions: —

(1) He must be of good character.
(2) His previous record must be good.
(3) His work in all courses must be satisfactory.

Students who have not previously had a considerable amount of practical experience cannot, as a rule, be recommended for positions of responsibility. This is especially true of the better positions for which managers or superintendents are wanted.

VOCATIONAL PLACEMENT

The work of locating first year students for apprentice training from April to October, after the resident term is completed, is in charge of the Director of Placement Service. Placement training for women students is in charge of Miss Margaret Hamlin of the Placement Office. Every effort is made to secure satisfactory positions affording the kind of training desired by the student, but the Placement Office cannot guarantee to place every student for training, when positions are not available. In normal times placement positions are secured for all students who are eligible under these conditions.

1. Positions are secured that will enable a student to gain practical experience in his particular vocation.

2. A student desiring placement at home may arrange for such assignment if the Director of Placement approves. As a rule, it will be found better for a student to spend this six months away from home even though he plans to be employed there after finishing the course. This statement is based on the experience of students who have already taken the course.

3. If credit is to be secured for the six months' placement training the following rules must be carefully observed.

Rules for Stockbridge Students on Placement

1. The student must interview the Director of Placement early in his first year in order that his qualifications, the type of work he wishes to pursue, and his general fitness may be determined.

2. No final arrangement for placement training may be made by the student himself until the Director of Placement has been consulted.

3. Students are required to complete their period of training without unnecessary absences.

4. No transfers are to be made by a student if he is to receive credit, until permission has been had from the Director of Placement.

5. A position may not be given up by the student until the Director of Placement has been notified.

6. A monthly report must be furnished on the form supplied, and submitted not later than the fifth of each month during his training period.

7. A student whose grade of work is regularly poor (below a 70 rating) in the classes of his major subject will not be eligible for placement training, unless recommended by the department in charge of his major work.

8. When a student fails to complete the requirements of his placement training with a satisfactory grade, he is not allowed to take the work of the second year.

9. All students are given a thorough physical examination by the Department of Physical Education at the beginning of each college year. Any disabilities liable to affect the student's placement work are noted, and, if of a serious nature, recommendations for corrective measures are supplied. Parents should understand that most kinds of agricultural work require a well-balanced combination of brawn and brain. No student whose physical condition is questionable will be accepted for placement training without a physician's certificate, and parents' approval.

It should be clearly understood by both employer and employee that the same energy, regularity and general conduct will be expected of the student during his period of placement training as is expected in his work in classes and on the campus.

It should also be noted that this six months' experience is educational in its nature. Students are expected to earn and receive a reasonable wage, but the purpose of the training is the experience gained rather than the wage earned. The scale of wages may vary in different localities, but each man's ability is given very careful thought, that he may obtain a wage that is fair to him. In the event of any misunderstanding the supervisor should be immediately informed.

DIVISION OF AGRICULTURE

DESCRIPTION OF COURSES

ANIMAL HUSBANDRY

The Animal Husbandry major fits students to cope with the practical problems of live stock production and management. It supplements and supports but does not duplicate or replace the necessary experience gained only through actual manual work in caring for animals. As a foundation, the study of breed history, live stock trends, animal anatomy and physiology is required. Special attention is given to physiological processes in breeding and feeding. Later courses show how these processes actually function under the stockman's guidance.

A herd of about 200 dairy cattle including Ayrshires, Guernseys, Jerseys, Holsteins and Milking Shorthorns, a band of about a dozen Percheron brood mares, a flock of about 60 Southdown and Shropshire sheep and a herd of about 50 Berkshire and Chester White swine, together with modern barns and equipment for housing and caring for the above live stock, and a farm of several hundred acres used primarily for the production of feed crops, gives ample scope for illustrating and giving practice in modern methods of live stock handling. The farm and barns are our laboratory; the animals and accessories our equipment.

Graduates from the Animal Husbandry major for the most part secure positions as herdsmen or farm managers.

Animal Husbandry

First Year

First Semester

Agricultural Engineering S5 (Farm Engineering)
Animal Husbandry S1 (Types and Breeds)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Dairy S1 (General Dairying)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor Practice
Milking, Harnessing and Teaming

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Animal Husbandry S2 (Principles of Feeding)
Bacteriology S2 (Continuation of Bacteriology S1)
Forestry S2 (The Elements of Forestry)
Fruit Growing S10 (General Course)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S7 (Farm Structures)
Animal Husbandry S3 (Animal Breeding and Herdbook Study)
Animal Husbandry S5 (Farm Meats)
Business English S1
Business Law S1
Farm Management S1 (Farm Management and Accounts)
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Agricultural Economics S2 (Marketing)
Agricultural Engineering S2 (Farm Motors)
Animal Husbandry S4 (Live Stock Production)
Animal Husbandry S6 (Dairy Cattle and Milk Production)
Poultry Husbandry S10 (General Course)
Soils and Crops S4 (Field Crops)
Veterinary Science S2 (Applied Animal Sanitary Science)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Animal Husbandry S-1. (Types and Breeds) I.

Includes a study of the history, development and characteristics of the various breeds of cattle, horses, sheep and swine together with a discussion of the conditions to which each breed seems best adapted. Laboratory work consists

judging and evaluating as many rings of all the classes of farm live stock as time will permit. Textbook: Vaughan, "Breeds of Live Stock in America."
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Animal Husbandry S-2. (Principles of Feeding) II.

A study of the organs of digestion, digestion and absorption of foods, digestibility of feed stuffs, utilization of feed materials in growth, maintenance, fattening, work, and milk production, and the importance of minerals and vitamins is undertaken in the first part of the course. The last part of the course is devoted to a study of feeding standards and methods of calculating rations. The principles included in this course are designed to serve as a background for the practical feeding studies in later courses. Textbook: Henry and Morrison, "Feeds and Feeding."
5 class hours a week. Credit, 5.

Animal Husbandry S-3. (Animal Breeding and Herdbook Study) I.

Includes a study of the physiology of reproduction and of animal genetics as well as the art of breeding. Among the topics included are the Origin and Domestication of Farm Animals; Modern Theories of Heredity, Variation and Sex Determination; the Systems of Breeding — Cross-, Out-, Line-, and Close-Breeding; and the one paramount problem of animal breeding, namely, Selection. Considerable pedigree work in the student's favorite breed is also included. Prerequisites: Animal Husbandry S-1 and Animal Husbandry S-2. Textbook: Rice, "Breeding and Improvement of Farm Animals."
1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Animal Husbandry S-4. (Live Stock Production) II.

This course includes studies of the production of horses, beef cattle, sheep and swine with emphasis on their place in New England agriculture. Attention is given to the general situation and outlook, distribution and adaptability of breeds, equipment, feeding, systems of management, management problems, disease control, fitting and showing, and practice in such skills as shearing, docking and castrating. Prerequisites: Animal Husbandry S-1 and Animal Husbandry S-2. Textbook: Henry and Morrison, "Feeds and Feeding."
3 class hours and 1 2-hour laboratory period a week. Credit, 4.

Animal Husbandry S-5. (Farm Meats) I.

This course includes a survey of the packing industry and follows the product (i. e. beef, pork, lamb and veal) from the feed-lot to the consumer's table. Practice is afforded in classifying animals as to market class and grade and in slaughtering, dressing, cutting and curing beef, pork, lamb and veal. At the end of the course a trip will be taken to several large packing houses in Boston consuming one day and costing about $10.00. Prerequisites: Animal Husbandry S-1, Animal Husbandry S-2. Textbook: Tomhave, "Meat and Meat Products."
1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Animal Husbandry S-6. (Dairy Cattle and Milk Production) II.

For Seniors.—This course treats all phases of dairy cattle production and management. The student is provided with an opportunity to study and seek the solution to the various economic, nutritional, genetic and managerial problems concerned in successful dairying. Lectures will be supplemented with talks by specialists in the various fields. Laboratory will consist of a detailed study of methods used on the college farm, with practice in the various skills necessary for the herdsman or showman.

Trips to purebred live stock farms in the state for the purpose of inspection and advanced dairy cattle judging will be required on five Saturdays during the spring semester. The cost for transportation will not exceed $10.00.
4 2-hour laboratory periods a week. Credit, 4.

Note:—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

DAIRY MANUFACTURES

The Dairy Manufactures course is designed to fit men for positions with market milk concerns, creameries, ice cream factories, and specialized dairy farms.

All dairy manufacturing courses are given in the dairy building (Flint Laboratory), a modern building designed especially for dairy work. The building is equipped with the newest and best types of dairy and creamery machinery.

The market milk room contains two complete pasteurizing units, a clarifier, separator, milk heater, automatic bottle filler and capper, and other necessary equipment for the proper handling of market milk.

The ice cream making room contains a pasteurizing vat, homogenizer, cooler, brine and direct expansion freezers, filling machines, and additional equipment such as is found in a modern ice cream plant.

The room designed for cheese making is equipped with cheese vats, draining racks, presses, mixer, etc. The butter making room has various types of hand and power churns, workers, scales, and other accessories.

The separator room contains a collection of separators and exhibits of modern equipment and supplies for the dairyman.

The testing laboratories are well equipped with apparatus for the Babcock, Mojonnier, and other tests used for the determination of fat, acidity, and general cleanliness of milk and milk products.

Dairy Manufactures

First Year

First Semester

Agricultural Engineering S1 (Farm Motors)
Animal Husbandry S1 (Types and Breeds)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Business Law S1
Dairy S1 (General Dairying)
Public Speaking S1
Soils and Crops S7 (General Science)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor Practice
Milking, Harnessing and Teaming

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Animal Husbandry S2 (Principles of Feeding)
Bacteriology S2 (Continuation of Bacteriology S1)
Dairy S2 (Testing Milk Products)
Horticulural Manufactures S4
Public Speaking S2
Soils and Crops S8 (General Science)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Economics S1 (Farm Economic Problems)
Business English S1
Business Management S3
Dairy S3 (Ice Cream Making, Cheese, and other Milk Products)
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Agricultural Economics S2 (Marketing)
Agricultural Engineering S6 (Dairy Mechanics)
Bacteriology S4 (Dairy Bacteriology)
Dairy S4 (Market Milk and Butter Making)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Dairy S-1. (General Dairying) I.

This course takes up the question of the importance of dairying in the United States, and especially in the New England States, giving the development of dairying from the earliest to the present time. It covers the secretion, composition, and properties of milk; reasons for variation in the per cent in fat in different samples of milk; the Babcock test for fat in milk and other dairy products; other common milk tests; the advantage of testing herds, Herd Improvement Associations, advanced registry work; the handling of market milk; soft cheese making, ice cream making, and butter making as applied to general farm conditions. The laboratory work consists in testing milk and dairy

products for butter fat, solids, and acidity, together with some dairy plant experience in milk handling, butter making, cheese making, and ice cream making.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Dairy S-2. (Testing Milk Products) II.

In this course a study is made of the common tests used in dairy manufacturing processes.

The lectures in this course include a discussion of the application of tests, what they indicate and their importance in the dairy plant.

The laboratory work consists of a study of the various dairy laboratory tests such as sediment, flavor, and total solids of milk; moisture fat and salt determination in butter; moisture test of cheese; the operation of the Mojonnier tester and the modified Babcock tests for fat in dairy products.

In addition to the testing work students will be required to arrange for work about the plant in order to become familiar with dairy plant practices and the operation of dairy machinery.
1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Dairy S-3. (Ice Cream Making, Cheese, and Other Milk Products) I.

This course deals with the making of ice cream, cheese, condensed, evaporated, and powdered milk.

In that part of the course on ice cream making, a careful study is made of modern methods of manufacturing the common frozen dairy products (ice cream, sherbets, ices, frozen puddings, punches, mousses, etc.)

The lecture work includes a discussion of the history of ice cream making, the ingredients found in ice cream, methods of preparing and standardizing mixes, the freezing process, methods of hardening, marketing, and distribution of the finished product.

The laboratory work involves the preparation and standardization of ice cream mixes, the freezing of ice cream and other frozen dairy products, and laboratory tests for butterfat and total solids in ice cream.

In that part of the course dealing with cheese making, a study is made of the different methods of manufacturing hard and soft cheese (cheddar, brick, cream, neufchatel, olive, nut, cottage, cheese spreads, etc.)

In the lectures the manufacture of the different cheeses is considered, either from the standpoint of marketing the entire milk supply of the dairy or as an economical means of disposing of surplus milk. In the laboratory work the different kinds of cheese are made.

Lectures are also given on the manufacture of the various concentrated products as sweetened condensed, evaporated and powdered milk, casein, semi-solid buttermilk, dried whey, malted milk, etc.
3 class hours and 3 3-hour laboratory periods a week. Credit, 8.

Dairy S-4. (Market Milk and Butter Making) II.

In that part of the course on market milk, a study of the development of the market milk industry is made. Attention is given to the necessary essentials in producing a high grade milk; the economics of milk production and distribution; food value and uses; the advantages and disadvantages of cooperative milk producers' organizations; the various methods of marketing milk; the transportation, processing and delivery of milk; manufacture and marketing of surplus milk in the form of by-products as cream, cultured buttermilk, chocolate milk, etc.

The laboratory work consists of receiving and making quality tests on milk and the operation of the machinery used in processing market milk.

In that part of the course on butter making, the principal factors studied are: methods of separating milk, the history, selection, care and use of separators; the pasteurization and ripening of cream; testing cream for acidity; the making and use of starters; a study of churns and churning; modern methods of making butter; marketing butter; tests for moisture, salt, fat, and curd content of butter.

In addition, trips to dairy farms, and a one-day trip, at an estimated cost of $5.00, will be made to city dairy plants.
3 class hours and 3 3-hour laboratory periods a week. Credit, 8.

Dairy S-6. (General Course for Poultry Majors) II.

This course takes up the importance of dairying in the United States, and especially in the New England States.

Lectures will be given on secretion, composition, and properties of milk, reasons for variation in per cent of butter fat in different samples of milk. The Babcock test for fat in milk, cream, skim milk and buttermilk, the advantages of testing herds, herd improvement associations, advanced registry work; the handling of market milk, soft cheese making, ice cream making, and butter making, as applied to general farm conditions.

The laboratory work consists mainly in testing milk and dairy products for butter fat, solids, and acidity, together with some laboratory work in milk handling, butter making, cheese making, and ice cream making.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Note:—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

The pioneer "Foods" class studies proper preparation of food dishes to insur**better knowledge of materials purchased by stewards' departments of hotels cafeterias, and country inns.**

FOODS AND FOOD PROCESSING

With the increasing importance and development of Massachusetts and her neighboring states as centers of recreation, both winter and summer, hotels, inns and restaurants are seeking trained personnel with a knowledge of food commodities, their selection, grades, prices, and preparation. This does not mean training skilled cooks or chefs, but rather to give a knowledge of some of the food supply problems handled in the steward's department for dining room and kitchen.

In our various agricultural courses here such information is already largely available; that is, in the poultry department all types of poultry meats and grades of eggs will be studied; in the dairy department, all kinds of dairy products from the raw milk through all the manufacturing stages to butter, cheese, and ice cream.

By vote of the College Trustees in June 1937, authorization was given for such a course, probably the first one of its kind in any land grant college, since only two other state colleges, New York and Michigan, offer four-year degree courses in hotel management.

This "Foods" program is strictly limited to not more than ten students in each class, and selection of applicants is made by a special faculty committee after a personal interview with each prospect, usually in May of each year.

The Massachusetts Hotel Association has actively sponsored the organization of this course and awarded during the past year a series of scholarship loans, aiding several young men recommended, because of their interest and ability in the work, by the hotel managers.

Foods and Food Processing

First Year

First Semester

Elementary Foods S1
General Mathematics S1
Horticulture S7 (Care of Plant Materials)
Poultry S9
Public Speaking S1
Soils and Crops S7 (General Science)
Vegetable Gardening S5 (Marketing Practices)
Hygiene S1 (Required of women students)
Student Health S3 (Hygiene—required of men students)
Physical Education S1 (Required of men students not participating in football; also required of women students)

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Agricultural Engineering S12 (Hotel Equipment)
Public Speaking S2
Quantity Foods S2 (Preparation and Service)
Soils and Crops S8 (General Science)
Special Lectures S2
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Accounting S1
Animal Husbandry S7 (Meats Course)
Bacteriology S3 (Food Sanitation)
Elementary Nutrition S1
Fruit Growing S11 (Commercial Fruit Growing)
Horticultural Manufactures S5 (Food Preservation and Judging)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Business English S2
Dairy S8 (Judging, Testing, and Processing of Milk, Cheese, Butter and Ice Cream)
Entomology S4 (Household Pests)
Horticultural Manufactures S6 (Food Manufacturing, Preservation and Utilization)
Kitchen Administration S2
Meal Planning and Service S2
Special Lectures S4

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Accounting S-1. I.

This course aims to give the student an elementary working knowledge of the principles underlying the accounting system in the gathering, analysis and interpretation of accounting data, and the methods used in preparing the usual type of business statements. Special problems relating to institution management will be used.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Agricultural Engineering S-12. (Hotel Equipment) II.

This course covers the mechanical equipment used in hotel management. It includes a study of refrigerators, cleaning equipment, electric ranges, pumps, steam boilers, and miscellaneous steam equipment; and the care and maintenance of electric appliances, including electric motors. Practice will be given in wiring, soldering, and pipe fitting.

2 class hours and 3 2-hour laboratory periods a week. Credit, 5.

Animal Husbandry S-7. (Meats Course) I.

For Seniors in the Foods and Food Processing Course. This course is designed to impart a knowledge of the fundamental principles involved in judging, purchasing, and efficiently utilizing meat and meat products. Laboratories will involve actual slaughtering, dressing, wholesale and retail cutting, curing and preparation of by-products. Judging practice will be secured in a near by packer cooler and at the end of the course a one day trip will be scheduled to several large packing houses in Boston. ($10.00) Textbook Tomhave, "Meat and Meat Products."

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Bacteriology S-3. (Food Sanitation) I.

This course includes a general study of micro-organisms responsible for the common diseases of man and the methods employed in their detection and control. It introduces the student to the application of bacteriological principles in the analysis of water, milk and milk products, and other food substances. Bacteria, molds, and yeasts are studied as living agents responsible for the decay, spoilage and infection of foods. The importance of the proper control of these living agents in the production and ripening of certain foods is considered. The conditions necessary for microbial growth and factors responsible for the universal distribution of micro-organisms are studied. The application of sanitation, chemical preservatives and physical and environmental conditions in the control of food infection or spoilage is discussed and demonstrated.

This course is designed to give students interested in the practical problems of food sanitation, spoilage, handling, and preservation a better understanding of bacteria and an appreciation of their importance in the sanitary production and handling of foods.

Laboratory discussions, exercises, and demonstrations.

2 3-hour laboratory periods a week. Credit, 3.

Dairy S-8. (Judging, Testing, and Processing of Milk, Cheese, Butter, and Ice Cream) II.

Work will be given on the importance of dairy products—their composition and food value. A careful study will be made of market grades—what they are and how arrived at. Ample laboratory work will be given in judging dairy products, to familiarize the student with the various grades and packs of all dairy products. A special study will be made of practical tests that can be used in determining quality of milk, of ice cream, of cheese, and of butter.

The course will also include a limited amount of practice work in the pasteurizing and processing of market milk, in the making of ice cream, or butter, and of cheese, particularly the soft cheeses, in order to provide a basis for the more intelligent selection of dairy products.

The course is arranged especially for those interested in foods and food processing as applied to hotel and restaurant work.

During the semester a trip will be made to leading dairy wholesale markets in Boston, at an estimated cost of $6.00.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3

Elementary Foods S-1. I.

This course aims to teach the basic principles of food preparation both fo attractiveness and conservation of nutritive value. It will include a study o food materials, foundation recipes, actual preparation of typical foods. Use wil be made of the most recent developments in standardized food preparation.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3

Elementary Nutrition S-3. I.

This course is designed to give a general survey of the fundamental principles on which the normal person may plan an adequate dietary. It includes a study of the nutritive value of foods so as to make wise selection possible.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Entomology S-4. (Household Pests) II.

A brief introduction to the field of entomology will be presented. This will be followed by the studies of the life history, identification, habits, and control measures of the insect pests most likely to be encountered.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Fruit Growing S-11. (Commercial Fruit Growing) I.

This course is designed primarily for students who are specializing in Foods and Food Processing.

This course includes:

1. A study of the common varieties of native fruits, citrus fruits, and bananas and the season during which each variety is at its best from the standpoint of the consumer.

2. A consideration of the factors which determine the grades of the various fruits.

3. A thorough study of the storage qualities and methods of storing all fruits commonly used here.

A two-day field trip will be required. Estimated cost, $10.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

General Mathematics S-1. I.

Fractions, ratio and proportion, percentage, mensuration, graphs, logarithms, with applications.

2 class hours a week. Credit, 2.

Horticulture S-7. (Care of Plant Materials) I.

This course deals with the care of woody ornamental plants under the following heads: planting, pruning, maintenance of soil fertility, winter protection and pest control.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Horticultural Manufactures S-5. (Food Preservation and Judging) I.

This course is planned to meet the needs of a special group. It will involve: the study of the principles of food preservation, a survey of the methods of preparation, the judging of finished products and comparison of those manufactured in a small way with the common commercial packs.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Horticultural Manufactures S-6. (Food Manufacturing, Preservation and Utilization) II.

This is a continuation of course S-5. Class work will consist of study and reports to the class of phases of the food industry of major interest to the student as it may relate to the general interest of the group. The laboratory work will consist of manufacture of specialties such as will be helpful to the group and such preservation problems as have not been studied in course 5.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Kitchen Administration S-2. II.

This course will be given during the second half of the second semester during the senior year. The course will be a general study of the various problems arising in the operation of a commercial kitchen. Attention will be given to the planning and equipment of kitchens, food control and costs, and personnel problems. Textbook Dahl, Kitchen Management.

3 class hours a week. Credit, 3.

Meal Planning and Service S-2. II.

This course is a study of the fundamental principles of meal planning and table service. The laboratory work will include demonstrations of table appointments, actual meal preparation and serving.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Poultry Husbandry S-9. I.

This course covers candling and grading of eggs, market classification, a study of eggs in the local markets, dressing poultry and various ways of preparing poultry for the table. Prices and market operations form an active part of the course. A trip is required to a nearby city market.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Quantity Foods S-2. (Preparation and Service) II.

This course is planned to give the student an insight into the problems of the kitchen department of the hotel, restaurant or club. Students will be apprenticed to the regular employees at the college dining hall and will assist the cooks, baker, stock clerk, etc., during the laboratory periods. The course is planned so that each student will have the opportunity to do actual work in quantity food preparation and service.

Required: Laboratory fee to cover spoilage $5.00. Cook's hat 25c. Rental of coat and apron, estimated 25c a week.

3 class hours and 2 4-hour laboratory periods a week. Credit, 7.

Soils and Crops S-7 and S-8. (General Science) I. II.

This is a course in applied sciences, chiefly in the fields of chemistry and physics, as they are tools serving the needs of the dairy industry. In general, the course is designed to give an introduction to scientific thought and phenomena by means of lectures, textbook study and classroom demonstrations. The emphasis is entirely built around the practical problems in the student's field of work. Specifically, this is a survey course given to Dairy Manufactures and Foods and Food Processing majors.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Special Lectures S-2 and S-4. II.

Registration restricted to Foods and Food Processing students. These lectures will be presented twice weekly by men within the hotel and restaurant industry and allied professions and by members of the college faculty. They will cover a variety of subjects all of which will be of interest and value to young people planning to enter the hotel and restaurant business.

2 class hours a week. Credit, 2.

Vegetable Gardening S-5. (Marketing Practices) I.

A study of the various factors concerned with the harvesting and marketing of vegetable produce, including grades, packs, packages, brands, and inspection requirements. The Department of Agricultural Economics will present material covering transportation, markets and marketing principles.

3 class hours a week. Credit, 3.

POULTRY HUSBANDRY

Eight courses are offered by this department. One is a general course designed particularly to equip the student with fundamental principles underlying successful poultry raising as related especially to the farm flock. The other seven courses are for students who desire to specialize in poultry culture.

There is a broad field of opportunity for adequately trained men in the commercial handling and sale of poultry and poultry products, specialists in incubation, brooding and rearing, and assistants or managers of commercial poultry farms. Good profits and wages await well-equipped men and women in these and other branches of poultry work.

This department is well equipped to offer practical instruction in poultry husbandry. Our quarters and equipment in Stockbridge Hall provide ample facilities for efficient classroom and laboratory teaching.

Our practical laboratory (college poultry plant) comprises about 1,500 adult birds, divided into some 40 pens of various designs, the flocks ranging in size from 10 to 250 birds; several lamp incubators, as well as five mammoth machines; brooding and rearing facilities for 5,000 chicks, including many styles of coal, oil,

"Egg Quality Studies in Poultry Husbandry"

wood, and electric brooders and chick batteries, also two types of cages for laying hens; facilities for practice in breeding, feeding, fattening, killing, picking, candling and grading eggs, caponizing, judging, mixing rations; construction of poultry houses and appliances, etc.

In addition to the actual practice work performed, the student has an opportunity to keep under observation practical experiments and demonstrations continually under way for the instruction of students and practical poultry keepers.

Poultry Husbandry

First Year

First Semester

Bacteriology S1 (Bacteriology and Rural Hygiene)
Business Law S1
Poultry Husbandry S1 (Judging and Housing)
Poultry Husbandry S3 (Feeding)
Public Speaking S1
Soils and Crops S1 (Soil management)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor Practice
Milking, Harnessing and Teaming

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Four Weeks Resident Instruction Followed by Six Months Placement Training)
Dairy S6 (General Course)
Poultry Husbandry S2 (Incubation and Brooding)
Poultry Husbandry S4 (Practice Work)
Public Speaking S2
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Engineering S3 (Farm Shop)
Fruit Growing S9 (General Course)
Poultry Husbandry S5 (Marketing and Disease Control)
Poultry Husbandry S7 (Breeding)
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Agricultural Economics S2 (Marketing)
Agricultural Engineering S2 (Farm Motors)
Agricultural Engineering S8 (Farm Structures)
Business English S2
Farm Management S2 (Farm Management and Accounts)
Poultry Husbandry S8 (Management and Specialties)
Vegetable Gardening S10 (General Course)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Poultry Husbandry S-1 (Judging and Housing) I.

This course embraces a study of the various economically important types and breeds of domestic fowl, judging for egg production capacity, and for exhibition quality. A visit to Storrs egg laying contest may be required. This course also covers the principles and practices of constructing and equipping houses on a commercial poultry farm. A few trips to nearby poultry plants will be taken to study poultry house ventilation. Two hours for judging; two hours for housing.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Poultry Husbandry S-2. (Incubating and Brooding) II.

A study of incubation and brooding is made by means of the operation of standard incubators and brooders and through a consideration of basic principles. Students select and grade hatching eggs, operate small incubators and observe mammoth incubators for a period of time. Under supervision each student has charge of a brood of chicks.

The incubation part of the course will consist of three class hours, one laboratory period and one practice period, and will run parallel to the brooding part which will consist of two class hours, one laboratory period and one practice hour.

5 class hours; 2 2-hour laboratory periods and the equivalent of 2 2-hour laboratory periods in incubation and brooding practice. (7 days a week.) Credit, 9

Poultry Husbandry S-3. (Feeding) I.

A study of the common poultry feeds, feeding principles and successful commercial farm practices. Suitable rations for specific purposes are calculated.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Poultry Husbandry S-4. (Practice Work) II.

Practice work in candling, packing eggs, killing, pedigreeing, shipping chicks and other similar seasonal jobs is required. Skill in each task will have to be acquired for credit in this course.
The equivalent of 2 2-hour laboratory periods a week. Credit, 2.

Poultry Husbandry S-5. (Marketing and Disease Control) I.

This course covers candling and grading eggs, market classification of poultry and eggs, judging eggs, fattening, killing, picking, drawing and judging of live and dressed market poultry. A trip to a nearby city market is required. This course also aims to acquaint the student with the normal hygienic conditions under which our domestic poultry thrive best. Sufficient anatomy and physiology will be given to enable the student to distinguish between normal and abnormal conditions. The nature of disinfectants and external and internal antiseptics will be stressed, and the students made acquainted with the best usages both scientific and practical in conducting a sanitary program for disease prevention and control. A special effort will be made to link the sanitary hygienic and disease control problems with the so-called down-to-date practices in feeding, housing and general management. Two hours for marketing; two hours for disease control.
2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Poultry Husbandry S-7. (Breeding) I.

This course includes the study of the improvement of poultry by means of mass selection, "seed-plot," flock improvement, and pedigree methods of breeding. Students follow through each step of a pedigree hatch and assist in the selection of the breeders used at the college plant. Basic principles of heredity necessary for an understanding of good breeding practices are studied. A visit to Genetics Laboratory at Storrs, Connecticut, may be required.
3 class hours and 1 2-hour laboratory period a week. Credit, 4.

Poultry Husbandry S-8. (Management and Specialties) II.

In this course the following points are given special attention: lines upon which a well-organized poultry farm is developed, the general arrangement of plots and buildings, record keeping, accounting and advertising, and a study of surveys. A trip covering three or more days will be made to representative successful poultry farms. The expense per student is approximately $15–$20. This is required of each student taking the course for credit. One hour's credit will be devoted to the specialties, such as turkeys, ducks, etc.
3 class hours and the equivalent of 1 2-hour laboratory period a week. Credit. 4.

Poultry Husbandry S-10. (General Poultry Husbandry) II.

Poultry keeping as a national industry; its importance and geographical distribution; opportunities and possibilities in poultry culture in Massachusetts; principles of feeding; utility classification of fowl; incubation; the production of hatching eggs; the baby chick industry; and brooding and rearing. Practical exercises will be closely correlated with the study of breeds and varieties, various types of incubators, brooders, brooder-houses, etc. "Practical Poultry Management" by Rice and Botsford will be used as a text.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Note.—Students who take course 10 must get permission from the Poultry Department to take advanced poultry courses.

Note.—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

DIVISION OF HORTICULTURE

FLORICULTURE

Students who complete the course in Floriculture are fitted primarily for work in commercial and private estate greenhouse establishments and retail flower stores. After gaining experience such students may be able to start in business for themselves. With the courses in General Horticulture they should also be qualified for positions on private estates, in parks, or in nurseries.

The offices and class rooms of the Department of Floriculture are located in French Hall. Of the two lecture rooms, one will accommodate 40 students, the other 90 students; a laboratory, equipped with slate-covered tables, will accommodate 40 students. In the basement of the building the department has a specially prepared room for bulb storage, a fertilizer and tool room, and a large room for general storage purposes.

The glass area of the department consists of approximately 20,000 square feet, divided as follows: French Hall, range of 7,200 square feet, a durable, practical commercial range, composed of palm and fern, sweet pea, carnation, rose and students' houses; the old Durfee range of 7,400 square feet, devoted to the growing of decorative, conservatory and bedding plants, and chrysanthemums; one house of 3,200 square feet suitable for propagating work and general plant culture; and approximately 2,200 square feet in cold frames and hotbeds.

In addition the department has land for summer culture of carnations, gladioli, dahlias, annuals and bedding plants, a perennial garden, an iris garden, and a rose garden.

Floriculture

First Year

First Semester

Business Law S1
Floriculture S1 (Garden Materials)
Floriculture S3 (Greenhouse Construction and Heating)
Horticulture S1 (Plant Materials)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Vegetable Gardening S1 (Principles of Vegetable Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Power lawn mower practice
Tractor Practice
Teaming and Harnessing

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Entomology S2 (Insects of Ornamental Trees and Shrubs)
Floriculture S2 (Greenhouse Management and Propagation)
Forestry S2 (The Elements of Forestry)
Horticulture S2 (Plant Propagation)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Vegetable Gardening S2 (Principles of Vegetable Culture)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S3 (Farm Shop)
Business Management S1 (Fundamentals of Business Management)
Floriculture S5 (Commercial Production)
Floriculture S7 (Flower Arrangement)
Fruit Growing S9 (General Course)
Horticulture S7 (Care of Plant Materials)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Business English S2
Floriculture S6 (Commercial Production)
Floriculture S8 (The Uses of Herbaceous Plants)
Floriculture S10 (Conservatory Plants)
Horticulture S6 (Plant Materials)
Vegetable Gardening S4 (Vegetable Forcing)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Floriculture S-1. (Garden Materials) I.

This course is intended for students who will take up private estate work or who will specialize in floriculture. It will include a study of the annuals, biennials, herbaceous perennials, and bedding plants which are commonly used in commercial floriculture and in private estate work. Methods of propagation

culture and uses will be considered. Laboratory exercises will include work in propagation, planting, study of materials, and planning of beds and borders.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Floriculture S-2. (Greenhouse Management and Propagation) II.

A study of the principles of greenhouse management including the consideration of soils, fertilizers, watering, ventilation, temperature regulation, insect and disease control. The methods of propagation of florists' crops will be taken up in detail.
3 class hours and 1 2-hour laboratory period a week. Credit, 4.

Floriculture S-3. (Greenhouse Construction and Heating) I.

This course will take up the origin, growth, and importance of the floriculture industry, development of the greenhouse, types of houses and construction, and methods of greenhouse heating. Trips may be taken to visit greenhouse establishments in the vicinity of Amherst.
1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Floriculture S-5. (Commercial Production) I.

Courses S-5 and S-6 will be devoted to a consideration of the important commercial crops. Special attention will be given to the culture (under glass) of roses, carnations, chrysanthemums, violets, and sweet peas. Other cutflower crops and various potted plants will also be considered. All members of the class are required to take a one-day trip to visit a large commercial greenhouse establishment at an approximate cost of five dollars each. Textbooks required during the two courses will be: Holmes, "Commercial Rose Culture"; and Smith, "Chrysanthemum Manual."
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Floriculture S-6. (Commercial Production) II.

A continuation of Floriculture S-5.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Floriculture S-7. (Flower Arrangement) I.

A study of the principles underlying the use of flowers in funeral designs and sprays, table decorations, corsages, vase, bowl and basket arrangements; decorations for public functions; study of color with regard to such work. Limited to students who are majoring in floriculture. Textbooks: White, "Principles of Flower Arrangement"; Harry, "Manual of Floral Designing."
class hour and 2 2-hour laboratory periods a week. Credit, 3

Floriculture S-8. (The Uses of Herbaceous Plants) II.

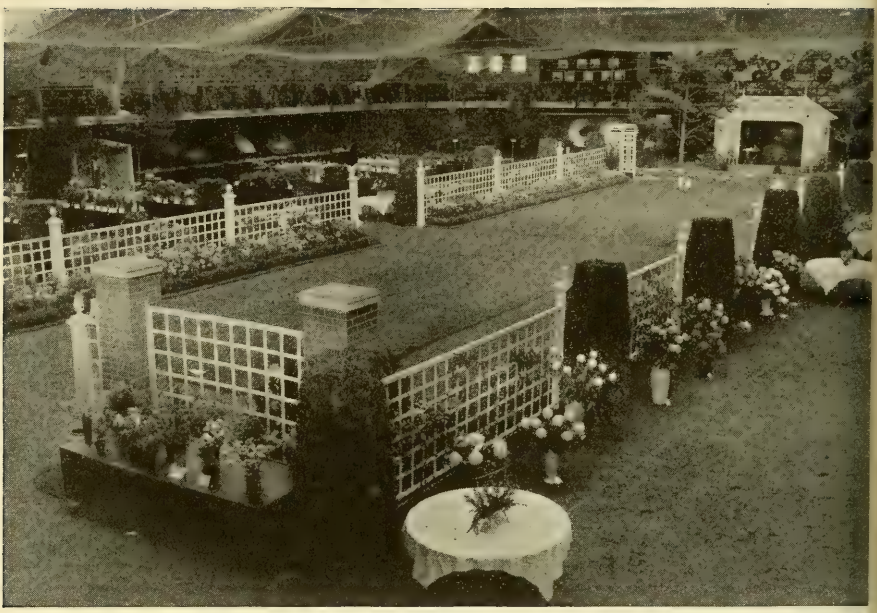
This course is a continuation of Floriculture S-1 and is intended for students specializing in floriculture and general horticulture. It provides opportunity for a more detailed study of many of the plants considered in the preceding course with special emphasis on their uses in gardens and in other types of landscape planting. Lectures, assigned readings, study and identification of plants, planning of borders and gardens. All members of the class are required to take a one-day trip to visit the spring flower show of the Massachusetts Horticultural Society at Boston at an approximate cost of four dollars each.
class hours and 1 4-hour laboratory period a week. Credit, 4.

Floriculture S-10. (Conservatory Plants) II.

A study of the plants, both foliage and flowering, which are used in conservatories and in decorative work. Methods of propagation, culture, uses and identification of plants will be included in the course. Trips may be taken to visit the conservatories at Smith and Mount Holyoke colleges.
class hour and 1 2-hour laboratory period a week. Credit, 2.

Note:—Every student must qualify in tractor practice; and in harnessing and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put on placement training who has not satisfied these preliminary requirements.

Practice in operating power lawn mower equipment will be required of all men students.



CENTRAL FEATURE 1937 STUDENT HORTICULTURAL SHOW

This show, an annual event, furnishes opportunity for practical experience in exhibition work for students in Floriculture, Horticulture, Fruit Growing, and Vegetable Gardening.

FRUIT GROWING

This course is arranged to give the student a sound practical knowledge of fruit growing and allied subjects. Graduates who are capable and experienced have advanced rapidly to positions of responsibility in some of the larger orchards of New England, and the demand is active for good men in that field.

Some graduates of this course have gone into business for themselves, establishing successful orchards of their own, or pruning, spraying and otherwise caring for a number of small orchards, the owners of which are not prepared to do their own work. Still others are packing house foremen or are engaged in some other marketing activity. The fruit-growing industry of New England is an important one and there are opportunities for good men who are well trained

Practical work in the orchards under expert supervision is emphasized where possible. It is intended to familiarize students with the best methods that have been devised by experiment stations and leading fruit growers for the production and marketing of high-quality fruits under New England conditions. The Department of Pomology has about fifty acres of fruits easily accessible from the classroom, and the orchards are used freely for purposes of instruction. All the common tree fruits and small fruits are grown here on a commercial scale. Many experiments and demonstrations are in progress in the plantations, offering an exceptional opportunity to the student.

The Department also has a thoroughly up-to-date storage and packing house, in which are several types of refrigerated and common storage rooms, fruit sizing machines, and other modern equipment.

A good equipment is maintained of the principal types of orchard tools and machines, including sprayers, plows, harrows, cultivators, tractor, prunning saws shears, etc., for study and trial by students.

Fruit Growing

First Year

First Semester

Business Law S1
Floriculture S1 (Garden Materials)
Fruit Growing S1 (Growing Tree Fruits)
Fruit Growing S3 (Varieties)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Vegetable Gardening S1 (Principles of Vegetable Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor Practice
Teaming and Harnessing

Elective

Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Agricultural Engineering S2 (Farm Motors)
Agricultural Engineering S10 (Repair of Farm Equipment)
Fruit Growing S2 (Orchard and Vineyard Pruning)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Engineering S9 (Drainage and Farm Structures)
Beekeeping S1 (Fall Management, Wintering and Honey Marketing)
Business English S1
Forestry S3 (Estate Forestry and Woodland Management)
Fruit Growing S5 (Harvesting, Packing, Storage and Marketing)
Fruit Growing S7 (Small Fruits)
Horticultural Manufactures S1
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Agricultural Economics S2 (Marketing)
Beekeeping S2 (Spring Management, Pollination and Honey Production)
Farm Management S2 (Farm Management and Accounts)
Fruit Growing S4 (Fruit Pests and Spraying)
Fruit Growing S6 (Advanced Fruit Growing)
Horticultural Manufactures S2
Vegetable Gardening S8 (Commercial Vegetable Culture)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Fruit Growing S-1. (Growing Tree Fruits) I.

This course covers the field of orchard planting and development, and the management of bearing plantations to produce fruit of high quality. Sites and soils for plantations of apples, pears, peaches, plums, and cherries are discussed along with the best methods of setting trees to insure a good start. The handling of young trees to bring them into early profitable bearing is given special attention.

The culture of bearing orchards is studied in detail to give an understanding of the factors that influence yield and quality of fruit. Methods of soil management are discussed with reference to their advantages and limitations. The experimental plots afford exceptional opportunities to study cultural methods and many subjects are discussed in the orchards.

3 class hours a week. Credit, 3.

Fruit Growing S-2. (Orchard and Vineyard Pruning) II.

This course aims to give the student a thorough training in the theory and practice of pruning apples, pears, peaches, cherries, plums and grapes. The bearing habit of each fruit is studied as a basis for effective pruning. Practice pruning in the College orchards is stressed as an important feature of the course.

Instruction and practice in budding and grafting are included in this course in connection with the propagation of fruit trees. Bridge grafting and top working are given special attention.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Fruit Growing S-3. (Varieties) I.

The purpose of this course is to acquaint the student with the important varieties of tree and small fruits and their value in commercial planting. Small fruits ripening in summer are frozen and stored to make them available for class use in winter. An important part of the course is the selection of fruit for exhibition purposes, and practice in judging.

2 2-hour laboratory periods a week. Credit, 2.

Fruit Growing S-4. (Fruit Pests and Spraying) II.

This course deals with the development of insect and disease pests, and particular attention is given to the vulnerable points in their life cycles at which control measures are directed. It also considers the principal spray materials and each student is given practice in their application.

The department is well equipped with modern spraying apparatus, from bucket pumps to large power outfits, and students are required to study the construction of these pumps and to operate them in the orchards.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Fruit Growing S-5. (Harvesting, Packing, Storage, and Marketing) I.

Handling the crop from tree to consumer is the field covered by this course. Methods of harvesting and appliances used are studied in the orchards. Practice in packing the most popular containers forms a prominent part of the laboratory work.

The principles of common and refrigerated storage are considered in detail and storage house construction is discussed, with a critical examination of several storages in use on or near the campus. Marketing methods are given special consideration as they relate both to distant and to local markets. A two-day Field Trip will be required. Estimated cost, $10.00.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Fruit Growing S-6. (Advanced Fruit Growing) II.

This course involves a critical study of tree behavior as a basis for orchard management. Information acquired in other courses and in placement training is brought to bear on important orchard problems. It is the aim of the course to familiarize the student with conditions under which fruit must be grown here, with current thought on the more recent developments, and with adjustments which are being made in the fruit industry of the Northeastern States.

Each student must be prepared to take one or more trips to prominent orchards or to leading fruit sections of the Northeast. This will involve some expense.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Fruit Growing S-7. (Small Fruits) I.

While orcharding will always be the leading phase of fruit growing in Massachusetts, there are many unusual opportunities for success in growing the various small fruits. This course deals with problems of establishing and managing plantations of strawberries, raspberries, blackberries, blueberries, currants, and grapes.

The college has plantations of these fruits, so the student has ample opportunity for a wide range of practical work. The aim is to make the course of the utmost practical value, as well as to give the scientific principles on which practices are based.

2 class hours a week. Credit, 2.

Fruit Growing S-9. (General Course) I.

This course is intended to meet the needs of students in other majors who cannot devote more than one semester to the subject of Fruit Growing. It deals with the practical side of growing and marketing fruits. Special attention is given to such questions as selection of sites, choice of varieties, grafting, spraying, pruning, soil management, harvesting, packing and marketing. (Floriculture, Horticulture, and Poultry Majors).

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Fruit Growing S-10. (General Course) II.

This course is a repetition of Fruit Growing S-9 primarily for the benefit of first year students who are specializing in Animal Husbandry.

4 class hours and 1 2-hour laboratory period a week. Credit, 5.

Note:—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

Getting Acquainted With the Historic Trees on the Campus

GENERAL HORTICULTURE

The constantly increasing interest in development of grounds, both public and private, for use and enjoyment, has created a demand for men trained to handle the varied problems in the construction and maintenance of these grounds. The course in General Horticulture aims to make the student familiar with these various problems.

Men who have taken this course are to be found in such different fields as foremen in nurseries, or proprietors of nurseries which they themselves have built up; superintendents on private estates, cemeteries, parks, and various public and private institution grounds; foremen for landscape construction firms, and some have developed their own business in landscape construction and grounds maintenance service.

With the whole campus as a laboratory, the student every day finds problems about him comparable to those he will meet when he goes out to work. The broad lawns, the walks and drives, the gardens, the greenhouses, the orchards, the vegetable plots, as well as the farms, supply all the various phases of work which will be encountered on estates, in parks, or in institution grounds. As far as practicable the student is given the opportunity to determine what these problems are and to solve them himself under expert supervision.

On the campus is to be found a large and excellent collection of mature trees, shrubs, and vines. From these plants the student is able to build up a background of plant knowledge; in identification; in propagation which is carried on in a special greenhouse for the purpose; in the handling of plants in various stages of their growth, in the nursery and on the campus; and in their ultimate care, pruning and protection against injuries of all kinds. Construction of roads, walks, drainage and other problems involving the moving of earth are especially valuable to those looking forward to landscape construction.

The courses in forestry are designed to give practical instruction in the elements of forest care and management with special reference to the problems that will be faced by one who is given the responsibility of managing farm or estate woodland. The necessary phases of forest measurement, silviculture and forest protection are included. Field work, carried out on the college forest of 755 acres at Mt. Toby, takes the form of demonstrations and practical field problems in forest care and management. Students in these courses work to a considerable extent under actual field conditions.

Horticulture

First Year

First Semester

Business Law S1
Floriculture S1 (Garden Materials)
Horticulture S1 (Plant Materials)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Soils and Crops S5 (Construction and Maintenance of Fine Turf Areas)
Vegetable Gardening S1 (Principles of Vegetable Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Power Lawn Mower Practice
Tractor Practice
Teaming and Harnessing

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insects of Ornamental Trees and Shrubs)
Forestry S2 (The Elements of Forestry)
Horticulture S2 (Plant Propagation)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Vegetable Gardening S2 (Principles of Vegetable Culture)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S3 (Farm Shop)
Business English S1
Forestry S3 (Forest Measurement and Management)
Fruit Growing S9 (General Course)
Horticulture S3 (Surveying and Mapping)
Horticulture S7 (Care of Plant Materials)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Agricultural Engineering S2 (Farm Motors)
Floriculture S8 (The Uses of Herbaceous Plants)
Forestry S4 (The Care and Cultivation of the Forest)
Horticulture S4 (Landscape Construction Problems)
Horticulture S6 (Plant Materials)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Horticulture S-1. (Plant Materials) I.

Study of evergreen and deciduous trees used in landscape work, their distinguishing characters, and culture, with special reference to nursery and planting practice.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3

Horticulture S-2. (Plant Propagation) II.

This course will present the principles of plant propagation with special reference to their application to plant materials in nursery and greenhouse practice. The lectures are concerned with careful explanations of seedage, cuttage, graftage, layerage and division. In the laboratory the student propagates plants by each of these methods.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Horticulture S-3. (Surveying and Mapping) I.

Practice in the use of simple surveying instruments as tapes, compasses and levels used in the measurement of land surfaces, and the application of these instruments in landscape construction.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Horticulture S-4. (Landscape Construction Problems) II.

Continuation of Horticulture S-3, including the reading of landscape plans, figuring construction cost on grading work and garden construction problems, and setting stakes for landscape development from working drawings.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Horticulture S-6. (Plant Materials) II.

Study of shrubs, both evergreen and deciduous, and woody vines, to enable the student to recognize the plants used in ornamental plantings and to familiarize him with the handling of these plants both in nursery practice and landscape work.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Horticulture S-7. (Care of Plant Materials) I.

This course deals with the care of woody ornamental plants under the following heads: planting, pruning, maintenance of soil fertility, winter protection and pest control.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Excursion.—For Horticulture S-6, a two-day field trip about May 20th, will be required. Estimated cost, $10.00.

Note.—Every student must qualify in tractor practice, power lawn mower operation, and in harnessing and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put on placement training who has not satisfied these preliminary requirements.

VEGETABLE GARDENING

Students who complete the course in Vegetable Gardening are fitted to go into commercial work as greenhouse vegetable growers, market gardeners, truck farmers and seed growers. Responsible positions are also open as gardeners on

private estates, state and private institutions, as assistants with seed concerns and with retail and wholesale marketing companies.

The vegetable industry is an important vocation in New England and the opportunities are excellent in the various phases of the business for good men or women who are well trained. The Department of Vegetable Gardening is well equipped to give thorough training in that ample class and laboratory rooms are available plus 3,500 square feet of modern greenhouse space and approximately 500 linear feet of hot and cold frames. More than 10 acres of land is also utilized in the production of vegetable crops on a commercial and demonstrational basis including a variety trial plot in which more than 1,000 varieties are grown annually. Equipment of the most modern type is maintained for study and use. The office, class and laboratory rooms are located in French Hall.

Vegetable Gardening

First Year

First Semester

Floriculture S1 (Garden Materials)
Floriculture S3 (Greenhouse Construction and Heating)
Fruit Growing S1 (Growing Tree Fruits)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Vegetable Gardening S1 (Principles of Vegetable Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor Practice
Teaming and Harnessing

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Floriculture S2 (Greenhouse Management and Propagation)
Fruit Growing S2 (Orchard and Vineyard Pruning)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Vegetable Gardening S2 (Principles of Vegetable Culture)
Vegetable Gardening S6 (Diseases, Insects and Their Control)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S9 (Drainage and Farm Structures)
Beekeeping S1 (Fall Management, Wintering, and Honey Marketing)
Business English S1
Fruit Growing S7 (Small Fruits)
Horticultural Manufactures S1
Vegetable Gardening S3 (Systematic Vegetable Gardening)
Vegetable Gardening S5 (Market Practices)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Beekeeping S2 (Spring Management, Pollination, and Honey Production)
Farm Management S2 (Farm Management and Accounts)
Fruit Growing S4 (Fruit Pests and Spraying)
Horticultural Manufactures S2
OR
Poultry S10 (General Course)
Vegetable Gardening S4 (Vegetable Forcing)
Vegetable Gardening S8 (Commercial Vegetable Culture)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

Vegetable Gardening S-1. (Principles of Vegetable Culture) I.

Lecture periods are devoted to discussions covering certain fundamental principles of plant structure and growth as they influence and regulate commercial vegetable culture. The work in the laboratory includes detailed studies in seed age, plant growing, manures and fertilizers, garden planting, pests, storage and marketing.

2 class hours and 1 2-hour laboratory period a week. Credit, 3

Vegetable Gardening S-2. (Principles of Vegetable Culture) II.

Lectures are devoted to discussion of the more important factors of soil and climate which regulate plant growth and reproduction. The laboratory studies are planned in such a manner that the factors discussed in lecture are definitely applied to specific vegetable or horticultural crop plants.

3 class hours and 1 2-hour laboratory period a week. Credit,

Vegetable Gardening S-3. (Systematic Vegetable Gardening) I.

This course is designed to acquaint the student with the identification, nomenclature and classification of the standard types and varities of vegetables; judging and exhibiting; seed production and variety improvement work.
1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Vegetable Gardening S-4. (Vegetable Forcing) II.

A study of (1) the geographical distribution of the greenhouse industry and the part this phase of vegetable production plays in supplying our markets with fresh vegetables, (2) the principles of culture, harvesting and marketing of those vegetables commonly grown as commercial crops under glass, (3) growing early plants in frames and plant houses for home and retail purposes.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Vegetable Gardening S-5. (Marketing Practices) I.

A study of the various factors concerned with the harvesting and marketing of vegetable produce, including grades, packs, packages, brands, and inspection requirements. The Department of Agricultural Economics will present material covering transportation, markets and marketing principles.
3 class hours a week. Credit, 3.

Vegetable Gardening S-6. (Diseases, Insects and Their Control) II.

This course is intended to give those students majoring in vegetable gardening an understanding of the more common insects and diseases which attack vegetable plants and the most satisfactory methods for controlling these pests.
2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Vegetable Gardening S-8. (Commercial Vegetable Culture) II.

Commercial problems and practices are studied in detail including seedage, planting, tools and machinery, nutrition, harvesting, marketing and management. Organized trips to market gardening sections are required covering a period of approximately three days and costing the individual student about fifteen dollars.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Vegetable Gardening S-10. (General Course) II.

This course is designed to meet the needs of students in other majors who cannot devote more than one semester to a study of vegetable gardening. Attention is to be given to starting plants early, transplanting, seeding, fertilizing, spraying, dusting, harvesting, marketing, and storing the more important vegetable crops. (For Poultry Majors.)
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Note.—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

WILDLIFE MANAGEMENT

Increased interest in the recreational use of our land areas opens a broad field in the Management of Wildlife. The dovetailing of a game crop into farming and forestry creates a need for the services of the vocationally trained man with the right enthusiasm for wildlife and its conservation.

Men who take this course are required to pursue studies in agriculture, forestry, zoology, and allied subjects. Familiarity with forest and stream, the agriculture of the region, and the intermingling wildlife is gained by practical field work on Mt. Toby Forest, a demonstrational and research area of 755 acres owned by the College, and on surrounding areas.

Although the course of study offered is primarily vocational, students must develop a technical mind. A natural bent for scientific investigation is quite as important as enthusiasm. In vocational work of this nature covering such a broad field and utilizing so many economic forces, one must be trained not only to observe but to reason as well. The work is interesting to those qualified to

pursue it, but calls for students who are mentally alert and capable of maintaining a high standard of work. Only this type of man is desired and will be accepted.

This course will be limited at present to ten students. Placement employment is confined almost solely to the State Department of Conservation, Division of Fisheries and Game, and most jobs are on game farms, fish hatcheries, stream surveys, and wildlife sanctuaries. The rate of pay is $2.00 a day which barely meets living expenses and allows little opportunity for saving towards the second year costs. Students should clearly understand this course presents the poorest placement earning opportunities of any of the major programs.

Because of limited size of class, all entrance applications will be carefully examined by a special faculty committee and, in case of any question on information supplied, applicants may be requested to report in person for interview.

Students in both the first and second years of the Wildlife course are required to attend a two-day session of the New England Game Conference which takes place during January or February each year in Boston. They must attend and report upon all sessions of the conference. The approximate cost of this trip is ten dollars.

Wildlife Management

First Year

First Semester

Agriculture S1 (Soil Management)
Breeding and Propagation S5
Forestry S5 (Animal Identification)
Forestry S7 (Introduction to Forestry)
Forestry S9 (Wildlife Food Plants)
Public Speaking S1
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor Practice

Elective

*Physical Education is required of men students not participating in football.

Second Semester

(Eight Weeks Resident Instruction Followed Six Months Placement Training)
Agricultural Engineering S2 (Farm Motors)
Breeding and Propagation S6
Ecology S2
Forestry S6 (Field Practice)
Forestry S8 (Forest Measurement)
Public Speaking S2

Elective

Physical Education S4 (Basketball and Hocke

Second Year

First Semester

Agricultural Engineering S3 (Farm Shop)
Forestry S27 (Silviculture)
Forestry S29 (Field Problems)
General Biology S21
Law and Administrative Principles S25
Physical Education S5 (Required of men students not participating in football)

Second Semester

Business English S2
Diseases and Predators S26
Fish Culture S24
Forestry S28 (Forest Use and Management)
Forestry S30 (Special Problems)

Electives

Physical Educaiton S4 (Basketball and Hock
Physical Education S6 (Baseball)
Rural Literature S2

Agriculture S-1. (Soil Management) I.

A course in the relation of the soil to natural cover and to the productio of cultivated plants. Soil management as regards moisture control, tilla organic matter and acidity will be studied.

The laboratory work will include training in the use and interpretation the maps of the U. S. Soil Survey, and in testing soil for texture, organic mat and acidity.

Students will be required to make a study of some suitable area, and rep on the soil conditions as related to wildlife management.

2 class hours and 1 3-hour laboratory period a week. Credit,

Breeding and Propagation S-5. I.

Anatomical and physiological relationships, age, sex and vigor determinati in birds; breeding principles and practices, housing and shelter principles a practices, feeding principles and practices, management of mature stock. A t to the State Game Farm at Wilbraham will be required.

3 class hours and 1 2-hour laboratory period a week. Credit,

Breeding and Propagation S-6. II.

A study of the basic principles of successful incubation, brooding and rearing. Students will select hatching eggs, regulate and operate small and mammoth incubators, regulate and operate various types of brooders with chicks.
2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Diseases and Predators S-26. II.

In order to conserve animal life a knowledge of the causes and the nature of death is necessary. The general scope of this course includes health disturbances and mortality in game animals due to disease producing agents and predators; also, the mechanism of the disease process and mode of death, along with corrective measures which will conserve animal health and life.
3 class hours a week. Credit, 3.

Ecology S-2. II.

Stresses the importance of physical factors, temperature, humidity, light, air currents, etc., to living things. Includes methods of measuring and evaluating these factors where game is concerned. (Elementary physical geography, meteorology.)
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Fish Culture S-24. II.

A course is designed to set forth the principles of fish culture for both stream and pond species. Methods of propagation, equipment and its use, water requirements, nutritional requirements and feeding methods, habitat evaluation and stocking policies will be considered. Field trips to hatcheries and nearby streams and ponds are required.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Forestry S-5. (Animal Identification) I.

Identification of the principal species of the fauna of North America including the use of keys and a study of the life history including breeding habits and food and cover requirements. Includes the reading of signs indicating animal abundance under natural conditions.
2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Forestry S-6. (Field Practice) II.

A discussion of the various field procedures for the determination of values of lakes, streams and forests for wildlife production. Field work includes surveys of areas for food and cover and the writing of reports based on field inspection for the management of wild land.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Forestry S-7. (Introduction to Forestry) I.

The aims and objectives of forestry with special reference to problems relating to forests and the use of land. The natural history of the forest. The recognition of forest types and the significance of these types in forestry. Field work includes the making of a forest boundary survey, the separation of the surveyed area into its component forest types and the preparation of a suitable forest map.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Forestry S-8. (Forest Measurement) II.

Methods of determining the volume and value of the forest growing stock. The measurement of annual and periodic forest growth. Field work includes a forest estimate of the area mapped during the first semester with the addition to the map of certain silvical data and timber factors.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Forestry S-9. (Wildlife Food Plants) I.

Knowledge of forest plants that produce food materials valuable in maintaining game birds and mammals is essential to every student of Wildlife Management.

This course is designed to familiarize the student with such vegetation, both native and introduced species. Stress is laid upon systematic identification of the material and upon game food values.
2 2-hour laboratory periods a week. Credit, 2.

Forestry S-27. (Silviculture) I.

Silvicultural systems used to secure natural forest reproduction and intermediate cuttings for cultural improvement as applicable in the Northeast. Field practice in the marking of trees for removal in the above cuttings. Forest protection. Artificial reproduction of food and shelter species.

One field trip involving a cost of about $1.50 per student is required.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Forestry S-28 (Forest Use and Management) II.

Forest working plans and forest regulation. The location and construction of improvements for forest operation with special reference to the harvesting of forest products. Financial aspects of forestry. The preparation of forest descriptions and reports.

One field trip costing approximately $1.50 per student is required.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

Forestry S-29. (Field Problems) I.

Problems provide the opportunity to develop a project in a field of work of interest to the student. These problems will involve field and laboratory work and will require a critical examination of the literature on the subject chosen. Problems may be chosen from a list of subjects provided, including those pertaining to the life history or management of fish, upland game, fur bearers, or non-game animals.
Conference, field and library work. Credit, 3.

Forestry S-30. (Special Problems) II.

A continuation of Forestry S-29. The second semester will be used to summarize the field data and to complete the report.
Conference, field and library work. Credit, 3.

General Biology S-21. I.

A course designed to bring together the threads of biological knowledge previously acquired. Deals with the principles of animal organization, physiology, development, and adaptation. Disease-producing organisms and other harmful animals are stressed, and a review of the types of the principal phyla is included.
2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Law and Administrative Principles S-25. I.

This course will consist of a series of lectures on the following subjects:
Contracts and land laws including explanations of abstracts and deeds.
5 lectures Mr. Smart.
Principles of accounting including the relationships of costs, overhead and profits. 5 lectures Professor Barrett.
State and Federal Laws relating to conservation.
5 lectures. State Conservation Department.
Lectures scheduled by arrangement. Credit, 1.

RELATED SUBJECTS IN OTHER DEPARTMENTS

Instruction in agricultural economics is given with a view toward presenting the business side, or economics of agriculture. The required course is divided into two parts given in separate semesters. The approximate division of subject matter for each semester is indicated below.

Agricultural Economics S-1. (Farm Economic Problems) I.

The purpose of this course is to introduce students to the more important economic problems facing New England farmers. Increasing competition with other farm sections, long-time movements of farm prices and farm profits, farm

credit, farm taxation, tariffs and other farm relief measures are some of the problems to be considered.
2 class hours a week. Credit, 2.

Agricultural Economics S-2. (Marketing) II.

This course deals largely with economic problems arising out of marketing farm products. Particular attention is given to marketing methods used in New England and to the comparison of local methods with methods used by farmers in competing sections. Principles and methods of co-operative marketing used by successful co-operative associations are studied in detail in order to show how New England farmers may meet competition from associations in other sections, either as individual producers or as officers or members of local associations.
2 class hours a week. Credit, 2.

Agricultural Engineering S-1 and S-2. (Farm Motors) I. II.

This course is a study of the principles of the gasoline engine and its accessories, as used in trucks, automobiles, tractors, and stationary work. Instruction is given in the laboratory by lectures, demonstrations, and exercises. Shop experience is given by overhauling machines brought in for repair. This course also deals with the application of electricity to agriculture including electric wiring.
3 2-hour laboratory periods a week. Credit, 3.

Agricultural Engineering S-3 and S-4. (Farm Shop) I. II.

This course gives instruction in the care and use of carpenters' tools through bench work, repair of farm equipment, and building construction. Practice in building forms, mixing and placing concrete, framing, cutting rafters, etc., make up this portion of the subject. Instruction in forging, pipe fitting, soldering, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water supply systems make up the other portion of the work.
3 2-hour laboratory periods a week. Credit, 3.

Agricultural Engineering S-5. (Farm Engineering) I.

The principles underlying the practice of farm drainage are discussed. Instruction is given in the use of the engineer's level for the purpose of laying out and grading tile drainage ditches. In addition, practice is given in forging, pipe fitting, soldering, and use of machinists' tools which will help in the repair of farm machines and miscellaneous farm equipment. Part of the course is given over to the study of field implements and power-driven machines. A study of various types of pumps and water supply systems is also included.
1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Agricultural Engineering S-6. (Dairy Mechanics) II.

This course is planned for men who are fitting themselves to take charge of dairy plants or allied lines of work. It includes a study of steam boilers, pumps, steam traps, water filters and softeners, belting, electric motors, milking machines, and refrigeration plants.
1 class hours and 1 2-hour laboratory period a week. Credit, 3.

Agricultural Engineering S-7 and S-8. (Farm Structures) I. II.

A study of the building materials commonly used in farm construction; details of construction and simple structural mechanics; the principles of design of such farm buildings as the dairy stable, hog house, horse barn, general purpose barn, poultry house, fruit and vegetable storage buildings is made. Each student will have opportunity to design in detail one of the major farm buildings in which he is particularly interested.
1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

Agricultural Engineering S-9. (Drainage and Farm Structures) I.

This course is for Vegetable Gardening and Fruit Growing majors and will involve the study of underlying principles of drainage. Practice will be given

in the use of the engineer's level for the purpose of laying out and grading tile drainage ditches. In the study of Farm Structures the materials, details of construction, simple structural mechanics, and principles of design of types of buildings suitable to the vegetable gardener will be made. Each student will design in detail one of the major buildings in his field.
1 class hour and 2 2-hour laboratory periods a week. Credit, 3

Agricultural Engineering S-10. (Repair of Farm Equipment) II.

Instruction is given in forging, pipe fitting, soldering, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water systems. (Fruit Growing majors.)
3 2-hour laboratory periods a week. Credit, 3

Agricultural Opportunities for Women S-1. I.

A study of problems of vocational adjustments and of opportunities for women in agriculture and related fields.
1 class hour a week. Credit, 1

Bacteriology S-1. (Bacteriology and Rural Hygiene) I.

The reproduction, structure, growth, changes produced by the action of bacteria upon various substances and the methods by which disease producing bacteria of man and animals are disseminated will be studied. The proper use of disinfectants, vaccines and serums in the control and treatment of disease will be discussed. The purpose of the course is to present the problems of applied bacteriology in health, agriculture and industry. The sanitary production, handling and distribution of milk involving human and environmental contacts with a food often consumed raw is an important problem to be controlled by responsible citizens of the community. Discussions on milk include the various sources of milk infections, methods of controlling sanitary production and marketing and the detection and elimination of milk dangerous to the public health. Water supplies are of especial importance to man. The construction of wells, cisterns, etc., will be briefly considered and the application of sanitary measures to prevent and control their pollution will be discussed. The proper treatment and disposal of private and municipal sewage present a problem of no small importance. Work has been planned in this course to present some of the problems pertaining to the sanitary production and distribution of foods.

This course is designed to acquaint the student with the nature and importance of micro-organisms and thus better explain biological changes in nature and susceptibility to disease. (Animal Husbandry, Poultry and Dairy Manufactures majors.)
3 class hours a week. Credit, 3

Bacteriology S-2. (Bacteriology and Rural Hygiene) II.

This course is a continuation of Bacteriology S-1 for Animal Husbandry and Dairy Manufactures majors.
3 class hours a week. Credit, 3

Bacteriology S-4. (Dairy Bacteriology) II.

Bacteria and other micro-organisms are the responsible agents for changes which occur in milk, and for the contagion which sometimes causes disease. They are found in milk at times when leaving the udder, they get in with the dust and dirt while milking and they adhere to the dairy utensils which carry them over from one milking to the next. From the cow to the consumer there is the constant presence of these micro-organisms to contend with, on the one hand, and to foster on the other.

Many of these changes occurring in milk are undesirable, such as ropy milk, sour milk, bitter milk, tainted milk, etc. Many of these changes are encouraged as the ripening of cream for butter, of milk for cheese, of milks for milk drinks. The former are fought, the latter fostered.

Micro-organisms of typhoid fever, scarlet fever, diphtheria and other diseases find their way by means of milk to the consumer and produce epidemic forms of these diseases.

Various bacteriological tests for the estimation of the numbers and types of organisms in milk are studied. Special attention is given to the interpretation of results indicated by the standard plate, Breed, methylene blue, and Burri methods of testing milk quality. Laboratory procedures for the determination of special groups of bacteria not normally found in milk, such as fecal contaminants and heat resistant organisms, are discussed. The proper use of these methods will quickly enable one to locate the source of trouble and check any further continuance.

It is evident, therefore, that to handle milk and milk products safely it is desirable to know something of the agents which are the source of so much attention in the dairy. This indicates the nature of the substance of this course. This course is required of all students who elect dairying as one of their special lines of work.

3 3-hour laboratory periods a week. Credit, 5.

Beekeeping S-1. (Fall Management, Wintering, and Honey Marketing) I.

The students are given an opportunity for individual handling of bees in the early fall, and field studies are made of the bee colony and its organization. Studies and practice in fall feeding are followed by a similar treatment of winter protection and the bees are then prepared for winter. During the latter part of the semester the surplus honey is extracted and prepared for market, a laboratory study made of the product and, finally, the commoner bee diseases are discussed and methods of control pointed out.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Beekeeping S-2. (Spring Management, Pollination, and Honey Production) II.

The first part of the semester is occupied in assembling and studying the equipment used in beekeeping, but as soon as the weather permits, work is resumed on the bees in the apiary. Studies are made in spring management; pollination in the apple orchards is particularly stressed, and attention is then turned to the preparation of the colonies for honey production.

Throughout the entire course, wherever possible, the work is made practical and individual, enough theory being given so that the student will understand the reasons for his manipulations.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Botany S-2. (Diseases of Trees and Shrubs) II.

This course is planned for students majoring in Horticulture. Topics presented follow: (1) Concept of a fungus and bacterium. (2) Parasitism. (3) Type specimens of tree diseases, heartrot, saprot, barkrot. (4) Woodrots. (5) Bud, leaf, flower, and fruit blights. (6) Root and vascular parasites. (7) Non-parasitic diseases. With each type, closely allied forms are also presented together with the general methods for control. The types are taught objectively and definite periods set aside for oral quizzing.

1 class hour and 1 2-hour laboratory period a week. Credit, 2.

Business English S-1 and S-2. I. II.

This course is designed to cover review work in the fundamentals of grammar and composition, and to give students training and practice in writing various types of business letters, reports, advertising copy, and news articles relating to their special fields.

3 class hours a week. Credit, 3.

Business Law S-1. I.

Required for freshmen. To consist of a particular study of the contract drawing, reading and interpretation with specific problem work. Commercial paper, torts, equity and personal rights presented by lectures during the course. Particular stress is placed on the reasoning process.

3 class hours a week. Credit, 3.

Business Management S-1. I.

This course is designed primarily for students majoring in Floriculture. It involves a study of records and accounts used by florists; costs and prices uses of capital and credit; house and store management; advertising; buyir and selling; economic use of labor and equipment; general business trends affecting the flower business; how the florist should make adjustments to me economic changes; analyses of going concerns; and finally a bringing togeth of all the information studied and applying it to the successful organization a business. The entire course is to be made as applicable and practical possible.

2 class hours and 1 2-hour laboratory period a week. Credit,

Business Management S-3. I.

This course is designed primarily for students majoring in Dairy Manufa tures. The principles of business organization and management are consider in relation to the successful operation of a dairy plant. The course includ a study of the following: various records and accounts used by dairies; cos and prices; uses of capital and credit; economic trends as affecting the bu ness; how to make adjustments in the business to meet economic change analyses of different types of going concerns; and finally a bringing togeth of all the information studied and applying it to the successful organization a business.

2 class hours and 1 2-hour laboratory period a week. Credit,

Entomology S-2. (Insects of Ornamental Trees and Shrubs) II.

A course designed to acquaint the student with the major pests injurious ornamental trees and shrubs. Life histories of the insects concerned, the typ of injury, and methods of control will be studied throughout the course. Rec nition of the major pests will be attained by a study of mounted specimen

2 class hours a week. Credit,

Farm Management S-1 and S-2. (Farm Management and Accounts) I.

The work in this course involves a study of farm records and accounts; co and prices of farm products; uses of capital and credit; types of farmi selection of crop and live stock enterprises; size, diversity and production related to the successful farm business; farm layout and arrangement; econon use of labor, power and equipment; detailed analysis of both successful a unsuccessful farms, how the farmer should make adjustments to meet econor changes; and finally, a bringing together of the information gained and app ing it to the successful organization of a farm business.

Actual farm records are used to illustrate the above points. The entire cou is made as applicable and practical as possible.

2 class hours and 1 2-hour laboratory period a week. Credit,

Note.—Farm Management will be given both semesters. The first semes will be for students majoring in Animal Husbandry; the second semester students majoring in Poultry Raising, Fruit Growing and Vegetable Gardeni

Forestry S-2. (The Elements of Forestry) II.

A course designed to give the student an introduction to the practice of f estry in New England with special reference to its application on the fores portions of farms and estates. The place of forestry in land management; e several objectives of forest management; brief outline of forest cultivation a improvement methods.

3 class hours a week. Credit

Forestry S-3. (Forest Measurement and Management) I.

A course designed to give the student a working knowledge of the meth employed in determining the volume of the forest-growing stock and its val to develop an understanding of the natural history of the forest and to phasize the fact that when a forest is skillfully managed it will yield its numer

roducts and benefits as annual or periodic crops. The principles of forest anagement underlying sustained yield are emphasized.
The field work in applied forestry is conducted on the Mt. Toby Forest.
class hour and 1 4-hour field period a week. Credit, 3.

orestry S-4. (The Care and Cultivation of the Forest) II.
This course logically follows Forestry S-3 and is designed to teach the basic rinciples of forest production. The several classes of intermediate cuttings e systematically taught and demonstrated in the field. The natural repro- uction methods are studied as well as basic work in seeding and planting as pplied to forestry. Special attention is given to the principles involved in arking timber for removal and to the science of forest protection.
Field work in applied forestry is given on the college forest at Mt. Toby.
class hour and 1 4-hour field period a week. Credit, 3.

orticultural Manufactures S-1. I.
This course is designed for the students interested in food preservation, either a business or for homemaking. The work covers the theories and practices preserving fruits, vegetables and fruit products, together with the study of ezing and dehydration of foods.
Economy of manufacture is stressed. The student is required to keep an curate record of costs and manufacturing operations.
class hour and 2 2-hour laboratory periods a week. Credit, 3.

orticultural Manufactures S-2. II.
This is a continuation of Horticultural Manufactures S-1 and covers the study manufacturing miscellaneous products. The work includes the manufacture confections for both homemaker and small commercial producer, pickles and kle products, maple products, citrus fruit products and the canning of meats, ultry and spring fruits and vegetables.
class hour and 2 2-hour laboratory periods a week. Credit, 3.

orticultural Manufactures S-4. II.
The class and laboratory exercises in this course are planned to meet the ds of students majoring in Dairy Manufactures. General principles of food servation and their application to the subject of dairying are discussed in ss exercises. Crushed fruits, fruit juices, syrups, flavored syrups and other oducts which are utilized in the dairy trade are manufactured and tested.
class hour and 2 2-hour laboratory periods a week. Credit, 3.

ublic Speaking S-1 and S-2. I. II.
The aim of the course is to give the student confidence in himself while speak- before groups, and to have him acquire some knowledge of, and practice the more practical types of public speaking.
class hour a week. Credit, 1.

ural Literature S-2. II.
A study of selected English and American writers, with especial emphasis rural subject matter and background.
2 class hours a week. Credit, 2.

ils and Crops S-1. (Soil Management) I.
Every agricultural interest is vitally concerned with the soil, its adaptations al its management for plant production. This course treats of the selection o suitable soils for the special purposes of agriculture, horticulture and flori- culture.
Laboratory includes training in the use and interpretation of the maps of t U. S. Soil Survey and in tests of soil texture, organic matter and soil acidity. ctical field work will be given in judging the crop adaptation and value of s s, and field demonstration of the use of tillage tools on the college farm.
As a field project the student will be required to make a study of some farm, rsery or florist's plant, from the standpoint of soil conditions and methods o soil management in relation to the enterprise as a whole.
2 class hours and 1 3-hour laboratory period a week. Credit, 3.

Soils and Crops S-2. (Fertilizers) II.

This course deals with the origin, manufacture, purchase and use of co- mercial fertilizer materials. A study will be made of the interpretation fertilizer formula, analysis and guarantee. Special attention will be given the newer concentrated fertilizer materials and to those produced from atm- pheric nitrogen. The laboratory work will give practice in the identificat of fertilizer materials, in the calculation of fertilizer formulas, and in the pr- aration of fertilizer mixtures.
2 class hours and 1 2-hour laboratory period a week. Credit,

Soils and Crops S-4. (Field Crops) II.

The lecture hours of this course will be devoted to presentation and c- cussion of the most successful methods of fertilizing, cultivating, harvesti and storing the field crops grown in New England. Special attention will given to the choice of the best adapted varieties for the production of h pasture, corn, potatoes, and root crops.

The laboratory work will include the study of corn and potato variet identification of grass and weed species, and studies of purity and germinati Field observation of growing crops will be included as the season permits.
2 class hours and 1 2-hour laboratory period a week. Credit,

Soils and Crops S-5. (Construction and Maintenance of Fine Turf Areas)

At the completion of this course the student should have a knowledge a appreciation of the requirements for the growing of lawns and sports turf.

He will have considered the construction of turf areas; seed identificati selection and sowing; the identification of turf grasses and their soil and fertili preferences, correct cultural practices, turf diseases and pests and their cont
1 class hour and 2 2-hour laboratory periods a week. Credit,

Soils and Crops S-7 and S-8. (General Science) I. II.

This is a course in applied sciences, chiefly in the fields of chemistry a physics, as they are tools serving the needs of the dairy industry. In gene the course is designed to give an introduction to scientific thought and p- nomena by means of lectures, textbook study and classroom demonstratic The emphasis is entirely built around the practical problems in the studer field of work. Specifically, this is a survey course given to Dairy Manufactur and Foods and Food Processing majors.
2 class hours and 1 2-hour laboratory period a week. Credit,

Veterinary Science S-1. (Animal Sanitary Science) I.

Conservation of the health of animals is the keystone of successful ani husbandry. This course acquaints students with the essentials upon which health of animals depends. In order that students may later guard the anim in their charge, attention is given to conditions favoring communicable a non-communicable diseases, and to prophylactic measures.
3 class hours a week. Credit,

Veterinary Science S-2. (Applied Animal Sanitary Science) II.

For Animal Husbandry major students. A continuation of S-1. The m common diseases of cattle, horses, sheep, and swine will be studied. Caus development; emergency; control; eradication; and prophylactic measures be emphasized.
3 class hours a week. Credit

Farm Practice.

Individual tests are given all students as indicated in the various course p- grams in both milking and harnessing and teaming. The students are gra either very good, good, satisfactory or unsatisfactory. Those who have not sufficient experience to satisfactorily pass these tests are required to take - ditional practice by appointment with the Farm Superintendent. Not m than two students are scheduled each day for practice in milking under supervision of the herdsman, and those not satisfactorily passing the team test are scheduled for individual work with the teamsters on the College Fa

hose who pass the test as satisfactory, but who wish additional practice may o so by appointment. The opportunity is available for any who wish to secure dditional skill in farm operations such as plowing, harrowing, etc.

This assignment in developing necessary farm skills is an important part of he vocational training program of each course during the fall semester of the rst year and a complete report on each student's skill and ability is submitted the Short Course Office and to the Director of Placement Service, who has harge of locating all placement jobs. Students failing to pass these tests satisctorily inevitably limit themselves from securing the better placement positions.

PHYSICAL EDUCATION

Women

This program aims at an all-round development of the student. It gives the udent activity adapted to her needs; assists in overcoming remediable physical efects and bad health habits; it encourages good health standards, helps her uild up skill in sports and games and swimming and leaves her with possiilities for spending leisure time wisely.

Required Courses

hysical Education S-1. I.

Outdoor season—field hockey, soccer, archery, tennis, golf, special gymnastics, vimming.

Indoor season—badminton, basketball, folk dancing, tap dancing, games, special mnastics, swimming, volley ball.

class hours a week. Credit, 2.

hysical Education S-2. II.

Indoor season—badminton, basketball, folk dancing, tap dancing, special gymastics, swimming, volley ball.

Outdoor season—archery, baseball, special gymnastics, tennis, swimming, golf.

class hours a week. Credit, 2.

ygiene S-1. I. (For Freshmen)

Lectures on personal hygiene, including the physiological basis for sound alth habits, the importance of the systematic planning of a student's daily ogram in order to provide the proper amounts of time for study, with suitle periods of sleep, relaxation, recreation, and sports; posture, appropriate pes of exercise, proper nutrition, social adjustment, the necessity for frequent edical, optical, and dental advice; sanitation and group health requirements.

class hour a week. Credit, 1.

Elective Courses

ysical Education S-3 and S-4. I. II. (For Seniors)

The senior program is arranged to give the student an opportunity to exess her desire for wholesome physical recreation, to further develop desirable aracter traits and social qualities and qualities of leadership.

class hours a week. Credit, 2.

Men

Required Courses

ysical Education S-1. I. (Recreation.—For freshmen. Outdoor games.)

The following outdoor games are taken up: Soft ball, touch football, soccer, lf, and swimming. Men may elect football or cross-country. The course aims give every man the opportunity to develop sufficient control over his body enable him to get pleasure from physical activities and to establish correct alth habits.

laboratory hours a week for first half semester. Credit, 1.

Physical Education S-5. I. (Recreation.—For seniors. Outdoor games.)

Includes the games of badminton, volley ball, archery and swimming, w the object of giving the men a fund of exercise material for use in after sch days. Men may elect football or cross-country.

2 laboratory hours a week for first half semester. Credit,

Student Health S-3. I. (Hygiene.—For freshmen.)

Lectures on personal hygiene including the physiological basis for sound hea habits, the importance of the systematic planning of a student's daily progr in order to provide the proper amounts of time for study with suitable peri of sleep, relaxation, recreation and sports; posture, appropriate types of ex cises, proper nutrition, social adjustment, the necessity for frequent medi optical and dental advice, sanitation and group health requirements. The cl will be divided into two sections. Section I, October and November; Section December and January.

1 class hour a week. Credit

Elective Courses

Physical Education S-4. II. (Recreation.—For freshmen and seniors.)

(Basketball, Hockey, Indoor Track, Boxing and Wrestling.) January-Mar

Students electing this course must be regular members of the basketb hockey, or indoor track squads and report regularly for practice with th squads. Boxing and wrestling men report on scheduled days. Credit

Physical Education S-6. II. (Recreation.—For seniors.)

The senior class is divided into three or four major groups according to e number of students electing the spring physical education program. An in mural baseball league schedule is played and an indoor and outdoor track m run off. The group winning the highest average in all three events will h its name engraved on the Stockbridge School spring athletic trophy.

Credit

APPLICATION FOR ENROLLMENT IN THE STOCKBRIDGE SCHOOL OF AGRICULTURE

Name ..... Date .....

City or Town ..... Street ..... State .....

Present Occupation ..... Age .....

School or College Attended:

Name of School ..... Number of Years in High School .....

Place .....

Indicate by a check mark the course in which you desire to register. Do not check more than one.

1. Animal Husbandry
2. Dairy Manufactures
3. Foods and Food Processing
4. Poultry Husbandry
5. Floriculture
6. Fruit Growing
7. General Horticulture
8. Vegetable Gardening
9. Wildlife Management

References.—I am personally acquainted with the above applicant, and know ..... to be of good moral character, industrious, studious, and physically capable.

Name ..... Position .....

Address .....

Name ..... Position .....

Address .....

(Two references are required, and should not be members of your own family. Your minister and your teacher, or a former employer, are desirable. These persons should sign the application themselves.)

Mail this blank to ROLAND H. VERBECK, *Director of Short Courses*
MASSACHUSETTS STATE COLLEGE, AMHERST, MASS.

Important.—Be sure to file citizenship certificate if State tuition rate is claimed.

SHORT COURSES AT MASSACHUSETTS STATE COLLEGE

Short courses are based on the idea that the motive which inspires study is the most significant factor in study itself, and that this motive rises when the student himself realizes he faces a problem that calls for a solution. Therefore there is no age limit. Enrolled in short courses are found the young and the old, the experienced and the inexperienced, the theoretical and the practical. In this grouping there is a value, since students learn from each other as well as from the instructors. Practically all Short Course students intend to make direct application of the knowledge given. Hence the aim of Short Course work is to offer the largest amount of information and training in agricultural and horticultural lines in the shortest possible time. During the past twenty years Short Courses have served hundreds of students in this Commonwealth, and the demand for these courses in recent years has steadily continued.

DIRECTORY OF INFORMATION

1. The College

Those desiring college catalogs and other pamphlets giving full information relative to entrance requirements, courses of study, expenses, opportunities for student labor, and so forth, and those with questions regarding admission to the college, either to the freshman class or to advanced standing should address William L. Machmer, Dean of the College, Amherst, Mass.

2. The Graduate School

Questions relating to courses offered leading to the degrees of Master of Science and Doctor of Philosophy, admission and work required, should be addressed to Fred J. Sievers, Director of the Graduate School, Amherst, Mass.

3. Short Courses

For information concerning the Short Course Units, the Stockbridge School of Agriculture, the College Summer School, write or apply to Roland H. Verbeck, Director of Short Courses, Amherst, Mass.

Tentative Dates for Short Courses

The following courses or group programs will be offered in 1938-1939, but are subject to changes as may be necessary.

Nine Weeks' Course in Poultry Raising—Unit 1 (November 14-23; November 28-December 2). Unit 2 (December 5-16; January 3-6). Unit 3 (January 9-27).

Ten Weeks' Course in Greenkeeping. January 3-March 13

Ten Day Course in Dairy Bacteriology. (January 3-14.)

Five Day Course in Milk and Cream Testing; Analyzing and Inspecting Milk Products. (January 16-21.)

Five Day Course in Milk Plant Operation and Manufacture of Surplus Milk Products. (January 23-28.)

Five Day Course in Ice Cream Making for beginners. (January 30-February 4.)

Five Day Course in Ice Cream Making for experienced students. (February 6-11.)

Five Day Course for Tree Wardens and Town Foresters. (March 20-25.)

For catalog of any of the schools, write

Director of Short Courses, M.S.C., Amherst, Mass.

CERTIFICATE OF CITIZENSHIP

The Massachusetts State College charges a tuition fee of $110 a semester to students who are not residents of Massachusetts. In order to satisfy the college authorities that an applicant is entitled to state tuition of $50 a semester, they require a statement signed by the clerk of the city or town in which the applicant resides, certifying to the fact that the parent or guardian of the applicant is a legal resident of said city or town. Where the guardian is certifying to this statement, it will be necessary for him to furnish copies of his appointment by the court. Such a statement may be made on the form below. If this is not presented when the student registers, the Treasurer has no option but to collect tuition on the above basis. When requesting the City Clerk to sign this certificate, an applicant for admission to the college should give the name and address of the parent or legal guardian.

This is to certify that I am the father.....mother.....legal guardian

.....of .....

Student's Name

Signed.....

This is to certify that on the date specified below (Insert name of parent or guardian)

.....is a legal resident of.....

Above Signee

....., Massachusetts.

Town or City

Signed.....

Town or City Clerk

Date .....

Seal

Mail this blank to Roland H. Verbeck, *Director of Short Courses*

Massachusetts State College, Amherst, Mass.

This certificate must be filed with application blank if lower tuition rate for citizens of Massachusetts to be secured.

Bulletin

MASSACHUSETTS STATE COLLEGE

WINTER COURSES

1938-1939

Bulletin

MASSACHUSETTS STATE COLLEGE

Winter Courses

1938-1939

The Winter Short Courses at Massachusetts State College are arranged primarily for the convenience of men and women engaged in the agricultural industry who wish to use the opportunity afforded by the winter season for study and practice under professional supervision. The courses are arranged in units of varying duration from the five-day courses in dairying to the eleven-weeks' course in greenkeeping. All courses are described on the following pages.

The College reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue or in any of its official publications.

Amherst, Massachusetts

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Publication of this Document Approved by the Commission on Administration and Finance

2M-11-'38. No. 5438.

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Librarian of the College

FRED C. KENNEY
Treasurer of the College

ROLAND H. VERBECK, B.S.
Director of Short Courses

The Faculty of Instruction for Winter Short Courses

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Assistant Professor of Poultry Husbandry

WILLIAM H. DAVIS, Ph.D. . . . . Botany
Assistant Professor of Botany

LAWRENCE S. DICKINSON, M.S. . . . . Agronomy
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Professor of Dairy Industry and Head of Department

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Professor of Agricultural Engineering and Head of Department

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Professor of Forestry and Head of Department

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Assistant Professor of Agronomy

JOHN H. VONDELL . . . . . Poultry
Instructor in Poultry Husbandry and Foreman of Poultry Plant

FRANK A. WAUGH, D.Sc., L.H.D. . . . . Landscape Architecture
Professor of Landscape Architecture and Head of Department

MASSACHUSETTS STATE COLLEGE
WINTER SHORT COURSES

The Winter School Short Courses have been maintained by the College for over thirty years. They meet a definite need in providing instruction for groups of men and women who can leave their regular duties during the winter months. The school closes in time for students to begin practical work in the spring.

The following courses or group programs are offered:

1. Poultry Raising—Unit 1 (Nov. 14-23: Nov. 28—Dec. 2) Unit 2 (Dec. 5-16: Jan. 3-6) Unit 3 (Jan. 9-27).
2. Greenkeeping (An eleven weeks' course—(Jan. 3—March 13).
3. Advanced School for Greenkeepers. (Course A—January 3 to February 3; Course B—February 6 to March 13.)

Each of these courses requires a definite number of students as a minimum if the course is to be given. Also there is a maximum limit to the size of classes, and in the greenkeeping course early application is always advisable. See explanation of limited enrolment under each course on following pages.

In addition to these longer courses there are other courses offered for shorter periods of time and less expense, as follows:

4. Dairy Bacteriology Course—Tuesday, January 3, 1:00 P.M. to Saturday, January 14, 12 M.
5. Milk and Cream Testing; Analyzing and Inspecting Milk Products—Monday, January 16, 1:00 P.M. to Saturday, January 21, 12 M.
6. Milk Plant Operation and Manufacture of Surplus Milk Products—Monday, January 23, 1:00 P.M. to Saturday, January 28, 12 M.
7. Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes and Freezing—Monday, January 30, 1:00 P.M. to Saturday, February 4, 12 M.
8. Ice Cream Making for Experienced Men—Monday, February 6, 1:00 P.M. to Saturday, February 11, 12 M.

The Dairy courses are so arranged that a student may take any one or all of them if he desires.

9. Five-Day Short Course for Tree Wardens and Town Foresters—Monday, March 27, 1:00 P.M. to Saturday, April 1, 12 M.

Winter School certificates will be awarded to students who complete the full work in the courses taken, with satisfactory grades.

Entrance Requirements

No entrance requirements have been fixed other than that the student shall be at least eighteen years of age and shall have completed the elementary or common schools.

Tuition, Fees and Expenses

There is a tuition fee of $10.00 for the full Ten Weeks' Winter School Program and each student is required to pay to the Treasurer a $5.00 registration fee. There are no laboratory fees in connection with any of the courses. The registration fee and tuition fee must be paid to the Treasurer of the college at the time of registration. There is also a health fee of $1.50 for the full term, not for the five-day or ten-day courses.

Board may be obtained at the college dining hall cafeteria service for $6.50 weekly, meal ticket plan. Rent for furnished rooms in private houses varies in price from $2.50 to $4.00 a week for each occupant.

The Short Course Office will be glad to assist students in locating rooms.

Registration at Short Course Office, North College

All Poultry students register on Monday, November 14, for the first unit of work. Registration for Greenkeepers will be held on Tuesday, January 3. Other short courses register on the Monday forenoon of the beginning week, with classes starting at 1:00 P.M. the same day. All fees are payable at College Treasurer's Office at time of registration.

Upon arrival the student should report at the office of the Director of Short Courses, located in North College; call Amherst 900, if telephoning.

APPLICATION FOR ENROLMENT IN WINTER SCHOOL

I hereby make application for admission to the following Winter Short Courses:

Date.....

Name .....

Home Address .....

Business Address .....

Age ..... Present Occupation .....

Previous Schooling .....

Check special course or courses in which you desire to register.

1. The Winter Course in Poultry Raising
   Unit 1 (Nov. 14-23: Nov. 28—Dec. 2).
   Unit 2 (Dec. 5-16: Jan. 3-6).
   Unit 3 (Jan. 9-27).
2. Ten-day course in Dairy Bacteriology (Jan. 3-14)
3. The Five Day Dairy Courses:
   (a) Milk and Cream Testing: Analyzing and Inspecting Milk Products (Jan. 16-21)
   (b) Milk Plant Operation and Manufacture of Surplus Milk Products (Jan. 23-28)
   (c) Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes, and Freezing (Jan. 30—Feb. 4)
   (d) Ice Cream Making for Experienced Men (Feb. 6-11)
4. Five-day Short Course for Tree Wardens and Town Foresters (Mar. 27—Apr. 1)

Mail this blank to Roland H. Verbeck, Director of Short Courses, Massachusetts State College, Amherst, Mass.

Note—File application blank in back of catalogue if for Greenkeeping Course.

WINTER COURSE IN POULTRY RAISING

November 14, 1938 to January 27, 1939

General Information

This nine-week short course will begin on November 14, 1938 and class work will close on January 27, 1939. Students will register at the Short Course Office on Monday, November 14, from 9:00 A.M. to 12:00 M. Classes begin at 1:00 P.M. the same day.

Thanksgiving Day recess begins on Wednesday, November 23, at 12:00 M., and continues to Monday, November 28, at 8:00 A.M. Christmas vacation extends from December 16, 5:00 P.M., to January 3, at 8:00 A.M.

The number of students will be limited to twenty; unless six students register the course will not be given. Applications should be sent early as students will be accepted in the order of their application. (See blank on page 4.)

Aim.—The purpose of this course is to give the students a good survey of the entire field of poultry production and cover the work as intensively as time will permit. It is designed for those who wish to follow poultry keeping as a vocation and who can spend but a short time in preparation.

Facilities.—Our large poultry plant of 1500 birds, equipped with modern incubators and brooders of various kinds, together with other adequate equipment and laboratories, will be at the service of students in carrying on their laboratory work.

The M. S. C. Poultry Club, a student organization, meets twice a month for special discussions on current topics and lectures by prominent poultrymen or specialists.

Entrance Requirements

There are no entrance examinations for admission, but students must be at least eighteen years old and have educational training through the elementary school, that is, eighth grade.

Tuition and Expenses

There is a tuition fee of $9.00 for the full course, or $3.00 for each three-week unit. A registration fee of $5.00 will be charged for the full course and a pro rata fee for a three week unit. These fees must be paid at the time of registration and need not be sent in advance. One or more field trips may be required.

Board may be secured at the College dining hall, cafeteria service, for $6.50 per week and rooms in private houses near the campus cost $2.50 to $4.00 a week. Text-books will cost $5.00 to $10.00. One hundred dollars should cover all necessary expenses for the full course.

Rooms may be secured at time of registration from approved lists at Short Course Office.

CALENDAR 1938—1939

First Term	November 14-23: November 28—December 2
Second Term	December 5-16: January 3-6
Third Term	January 9—January 27

SCHEDULE OF CLASSES BY TERMS 1938—1939

First Term		*Second Term*		*Third Term*	
W-1 Judging	7 hrs.	W-4 Feeding	7 hrs.	W-7 Management	7 hrs.
W-2 Marketing	7 hrs.	W-5 Incubation	7 hrs.	W-8 Brooding	7 hrs.
W-3 Breeding	7 hrs.	W-6 Housing	7 hrs.	W-9 Diseases	7 hrs.

Description of Courses

W-1. Poultry Judging.—A study of the characters effected by egg production and those that limit egg production in the individual. Trapnested birds with known records are constantly used to check the student's judgment in estimating production. This knowledge has direct applicability in the constant elimination of non-producers from the flock, and the selection of outstanding breeders.

W-2. Marketing Poultry Products.—This course covers candling and grading of eggs, market classification of poultry and eggs, judging eggs, fattening, killing, picking, drawing and judging of live and dressed poultry.

W-3. Poultry Breeding.—The course combines in class and laboratory genetic theory and breeding applications. The various methods of selection are studied. The vital data about each breeder is recorded and studied in an up-to-date system of pedigree record keeping.

W-4. Poultry Feeds and Feeding.—This course embraces a study of the fundamental principles of nutrition, and their application to the problems of feeding the poultry flock—the most expensive item in the grower's budget. Feeding the growing stock, the laying flock, and fattening are all included.

W-5. Incubation.—A study of incubation principles and practices is made in conjunction with the incubators in the well-equipped cellar at the College plant.

W-6. Poultry Housing.—A careful study is made of the various physical and biological factors which are involved in keeping houses comfortable, dry and hygienic. The several types of houses on the College plant furnish good practice and study material.

W-7. Poultry Farm Management.—The modern trends of commercial poultry farm organization are studied by the survey method. Each student will prepare detailed plans for a farm he now owns or might hope to develop in the future. These plans will emphasize and correlate the work in breeding, incubation, brooding, growing, market egg and meat production, marketing and accounting.

W-8. Brooding.—Brooding, as one of the most important phases of the poultry industry, is taught with the aid of modern equipment such as coal burning and electric brooders, and several kinds of battery brooders.

W-9. Disease Prevention.—Embraced in this course are studies of normal and pathological anatomy; sanitary programs of disease control; and the use of disinfectants, vermifuges and remedies of known efficacy.

This course is so organized that a student may take any term or combination of terms that he wishes, completing the course in succeeding years if it is found necessary.

WINTER COURSE FOR GREENKEEPERS

January 3 to March 13, 1939

A specialized course for men engaged in the profession of greenkeeping or members of green committees. The courses are so arranged that all the factors of successful turf management are discussed individually and particularly in their relation to one another. The subjects as outlined can be effectively studied during the winter months.

General Requirements

An applicant for this school must be either a member of the green committee, a greenkeeper, or must have had experience on a golf course, and the application blank must be countersigned by the greenkeeper and chairman of the green committee.

No entrance examinations are required, but it is expected that the student will have a reasonable education in the English language.

The number of students is limited.

The college reserves the right to reject any applicant obviously unqualified for the work, or to dismiss any student for misconduct, or failure to properly meet the requirements of the course.

The winter school certificate will be given only to those who complete the full course with credit. A student may register for the first five weeks and complete the course for certification the following year. Matriculation fee for one-half term is $9.00.

Registration January 3. Classes begin January 4.

Courses Offered

Course	*Weekly Periods*	*Length of Course*
Landscape Appreciation	1 Lecture	Full Term
Botany	1 Laboratory, 2 Lectures	Full Term
Entomology	1 Lecture	Full Term
Water Systems	2 Laboratories, 3 Lectures	Five Weeks
Drainage	2 Laboratories, 3 Lectures	Five Weeks
Equipment	3 Laboratories, 2 Lectures	Five Weeks
Managerial Problems	3 Laboratories, 1 Lecture	Five Weeks
Grasses and Turf Culture	3 Laboratories, 2 Lectures	Six Weeks
Cost Keeping and Analysis	3 Laboratories, 2 Lectures	Four Weeks
Soils and Fertilizers	2 Laboratories, 2 Lectures	Full Term

Forum and special lecture hour daily during full term.

Description of Courses

I. Water Systems.—A study of standard types of water systems, with particular reference to the relation of size of pipe, pressure and nozzles, to the flow and delivery of water. *Professor C. I. Gunness*

II. Soils and Fertilizers (Special for Greenkeepers).—Fundamental properties of soils and their management as related to golf green conditions will constitute the main part of the course. The study of fertilizers and their uses will be made as complete as possible. Individual problems and discussions will be given all the time and attention warranted.

Department of Agronomy

III. Equipment.—All major and minor equipment and materials used in golf course maintenance are not only thoroughly studied, but the factors influencing their economic use and possible cumulative effect upon the cultural condition of the turf are noted. *Assistant Professor L. S. Dickinson*

IV. Managerial Problems.—This course uses for its laboratory a very large and complete model of a golf course, about which the many problems of a greenkeeper are studied and the influencing factors noted.

The making and presentation of reports to green chairmen and committees is also a part of this course. *Assistant Professor L. S. Dickinson*

V. Grasses and Turf Culture.—At the completion of this course the student should be able to identify the various turf grasses and to thoroughly understand their cultural requirements. The various cultural practices and their effects are carefully studied and turf diseases and pests are also included in this course. *Assistant Professor L. S. Dickinson*

VI. Drainage.—The entire problem of land drainage will be discussed and practical problems worked out. The student will be taught the use of the level and how to set ditch grades. *Assistant Professor M. J. Markuson*

VII. Botany for the Greenkeeper.—Laboratory demonstration and lecture discussions dealing with the living plant and its parts and consideration of the work performed by each part. *Assistant Professor W. H. Davis*

VIII. Entomology for the Greenkeeper.—This course contains a brief introduction as to what insects are and their relationships. The greater part of the course will be devoted to identification, life history and control measures of insects, damaging greens. *Dr. Frank R. Shaw*

IX. Cost Keeping and Analysis.—The value of cost keeping and its analysis will be demonstrated, and a method of cost keeping will be taught. The many factors that enter into the cost will be noted, analyzed and adapted to individual problems. The distribution and directing of the workmen will also be studied. *Assistant Professor L. S. Dickinson*

X. The lectures on landscape appreciation will be given by Professor Frank A. Waugh, Head of the Department of Landscape Architecture.

Forum and Special Lecture Hour.—One hour is set aside daily for a summarization of the preceding day's work, or for discussions with any visiting greenkeeper, green chairman, or for special lectures.

Assistant Professor L. S. Dickinson, Leader

Information

For further information write to the Director of Short Courses, or to Professor Lawrence S. Dickinson, Department of Agronomy, Massachusetts State College, Amherst, Massachusetts.

ADVANCED SCHOOL FOR GREENKEEPERS

Admission to this school is limited to those who have previously attended the regular Winter School for greenkeepers at this institution.

Two courses are offered, each having a different curriculum.

Course A.—January 3 to February 3; Course B.—February 6 to March 13.

Expenses

	Tuition	*Registration*	*Health Fee*
One Course Only	$5.00	$2.50	$1.50
Both Courses	10.00	5.00	1.50

WINTER SHORT COURSE IN DAIRY BACTERIOLOGY

(Methods for Testing Milk)

January 3 to January 14, 1939

General Information

Each year numerous requests are received by this department for individual instruction in modern bacteriological methods for testing milk. The majority of these requests are due to the interest of the modern dairy man in the quality of his product, as expressed by results of chemical and bacteriological examinations and a desire to more accurately control production on the farm and in the dairy plant. A two weeks' course on modern testing methods has been designed to meet the need of the dairy man who wishes to

provide a means of making these bacteriological tests in his own plant laboratory.

Admission and Registration

There is no prerequisite for the course. Students must be at least eighteen years of age and must have completed the elementary or common schools.

Students should enroll by mail. See special application blank in front of announcement. Early registrations will be given preference.

Ten students will be the maximum number admitted to this course. Unless five students have registered prior to the opening day, the course will not be given.

Tuition, Fees and Expenses

There is a tuition fee of two dollars and each student is required to pay the Treasurer a registration fee of two dollars per course.

Description of the Course

Five afternoons each week will be devoted to laboratory discussions, demonstrations and manipulation of the Breed and Brew, Frost Micro Plate, Resazurin, Burri and Standard Plate Methods of examining milk. Each student will be given ample opportunity to perform these tests on numerous milk samples. Instruction will also be given in the correct use and care of the compound microscope.

Mornings may be spent in the department or college library where there are available numerous books and pamphlets on dairy bacteriology and the relationship of milk and milk products to the Public Health.

Information

For further information write to the Director of Short Courses, or to Professor Leon A. Bradley, Massachusetts State College, Amherst, Mass.

WINTER SHORT COURSES IN DAIRYING

January 16 to February 11, 1939

The courses are intended not only for experienced milk plant, ice cream and creamery men, but for men with little dairy experience, who have a desire for knowledge in the various dairy manufacturing fields. Those who are inexperienced should plan to take all four courses. Farm men and women, who are responsible for milk handling, butter making, or the making of soft cheese will find the first and second courses adapted to their needs.

There are no prerequisites for the courses. A certificate showing the subject studied is given at the end of each course to those doing satisfactory work.

Admission

There are no entrance requirements except that the student must be eighteen years of age and must have a common school education.

Registration

Students should enroll by mail. See application blank in front of announcement.

Enrolments for each of the four dairy courses described in the following paragraphs should be made at least three days prior to the beginning of the course. Those failing to enroll by mail may do so on arrival for the

course. The work begins for each course on the afternoon of the opening day Therefore, those enroling should arrive early enough in the morning so tha time is available for registering, securing accommodations, etc.

Early registrations are given preference. A maximum of 20 will be ad hered to for all courses. Second courses will be given in case the number o registrants warrant it.

All applications for entrance to these courses should be addressed to th Director of Short Courses, Massachusetts State College, Amherst, Mass.

Upon arrival the students should report at the office of the Director o Short Courses in North College, for information concerning rooming accom modation and for registration.

Tuition, Fees and Expenses

There is a tuition fee of two dollars for each course, and each student i required to pay the Treasurer a registration fee of two dollars per course.

Students will need white suits for laboratory work, and may wish t purchase one or more textbooks for each course.

Board may be obtained at the college dining hall at $6.50 a week or i private boarding houses from $6.00 to $7.00. Rent for furnished rooms i private houses varies from $2.50 to $5.00 a week for each occupant.

Description of Courses

Course I. Milk and Cream Testing; Analyzing and Inspectin Milk Products—(January 16—21)

This course is designed to help men and women to become proficient i operating the Babcock test, acidity test, use of the lactometer, the Methylen Blue test and Plate Counts, as well as other methods commonly used in test ing, analyzing, and inspecting dairy products.

The course should be of special value to those interested in dairy inspec tion work, cow testing association positions, or laboratory control work whic is essential in milk handling.

Opportunity is given during the course to secure the Massachusett Babcock Testing certificate.

Course II. Milk Plant Operation and Manufacture of Surplu Milk Products—(January 23—28)

This course should help milk plant and creamery employees to a bette understanding of the essentials involved in the scientific handling of milk an creamery products.

Some of the lecture and discussion topics are: general scope of the marke milk industry, value of milk as a food, relation of bacteria to milk, sanitar production, marketing, plant construction and selection of equipment, process ing, delivery, handling surplus, standardizing, grading, and labeling, and car of milk in the home. Special attention will be given to economic methods o marketing surplus milk through cottage and other soft cheeses, and commer cial buttermilk.

Laboratory exercises will cover milk sampling, the scoring of dairie cream line problems, the scoring of milk, the study of milk plant equipment milk processing, the manufacture of commercial buttermilk, of cottage, neuf chatel, and cream cheese and butter.

Practical application of dairy tests and of lecture work will be carrie out in the college creamery and dairy barn.

Course III. Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes, and Freezing (January 30—February 4)

This course is planned for those wishing to enter the ice cream business, but who have had no previous experience along this line.

Lecture and laboratory work will cover the selection of ingredients for the ice cream mix, standardizing and calculating the mix, processing the mix, freezing and yield control, causes and remedies of ice cream defects, etc. Actual experience will be secured in making ice cream mixes and freezing work. Different kinds of ice cream will be made, as well as ices and sherbets. The handling of refrigeration machinery will be included in this course.

All those enrolled in this course should plan to stay over for the second week's work in ice cream making.

Course IV. Ice Cream Making for Experienced Men (February 6—11)

This course is designed for those who have had actual experience in ice cream making and wish to secure a more thorough knowledge of their work.

Lectures and laboratory work will cover a study of various factors affecting efficient freezing operations, the effect of variations in composition and manufacture on quality of the finished product, etc. Round table discussions of new methods and recent experimental work, as well as individual problems will be included. Some specialists in the ice cream business and closely allied fields will speak before the group.

Information

For further information write to the Director of Short Courses or to Professor Julius H. Frandsen, Massachusetts State College, Amherst, Massachusetts.

SHORT COURSE FOR TREE WARDENS AND TOWN FORESTERS

March 27 to April 1, 1939

Description of Course

A course designed to be of use to town tree wardens, city foresters, and others whose major interest is the care of shade trees.

This course was first organized at the request of the Massachusetts Tree Wardens' Association and consists of lectures and field work. The program of the course will include (a) lectures and demonstrations in the care of shade trees, (b) recognition and control of shade tree insects, (c) recognition and control of shade tree diseases, (d) characteristics and properties of species desirable for use as shade trees. Field work and demonstrations will be conducted on the College campus where a great variety of shade tree species is available for study.

Program for 1939

Monday—A reconstruction program for hurricane damaged trees. The financing of shade tree programs in towns.

Tuesday—(1) Shade Tree Diseases. (2) Recent Developments in the Protection of Tree Wounds and Scars. (3) Trees and Wildlife. (4) Wood Rotting Fungi. (5) Current Literature of Forest Entomology.

Wednesday—(1) Present Status of the Gypsy Moth Situation in the Unit States. (2) The Massachusetts Program for the Control of t Gypsy Moth. (3) The Use of Silvicultural Methods in the Co trol of Gypsy Moth. (4) Parasites and Predators of the Gyp Moth. (5) Spray Materials and Equipment used in Gypsy Mo Control.

Thursday—(1) Replanting Massachusetts Roadsides. (2) The Present Stat of the Dutch Elm Disease in America. (3) Forest Products fro City and Town Trees. (4) Managed Forestry—Field Trip.

Friday — (1) Diagnosis of Gas Injury to Trees. (2) Shade Tree Problen and Public Utilities. (3) Methods of Pruning Trees. (4) Tow Tree Planting Programs with Especial Reference to Hurrica Damage.

Saturday—Court Decisions Involving Shade Trees.

Registration

Students should fill in application blank in front of this bulletin and ma to Director of Short Courses, Massachusetts State College, Amherst, Mass chusetts.

Upon arrival the students should report at the office of the Director c Short Courses in North College for registration, as the work of the cours begins in the afternoon of the opening day.

Tuition, Fees and Expenses

There is a tuition fee of two dollars and each student must pay the Treas urer a registration fee of two dollars. Total cost $4.00.

Information

For further information write to the Director of Short Courses, or to Pro fessor Robert P. Holdsworth, Massachusetts State College, Amherst, Massa chusetts.

APPLICATION FOR ENROLMENT
IN THE
TEN WEEKS' COURSE FOR GREENKEEPERS
January 3 to March 13, 1939

Date .....

Name .....

Home Address .....

Business Address .....

Age ..... Present Occupation .....

Previous Schooling .....

I hereby certify that the above applicant for the Winter School Course for Greenkeepers is either,—(1) a member of the green committee, (2) a greenkeeper, or (3) an employee of this club.

Signed .....
Greenkeeper

Signed .....
Chairman of the Green Committee

Mail this blank to Roland H. Verbeck, *Director of Short Courses*, Massachusetts State College, Amherst, Mass.

THE STOCKBRIDGE SCHOOL OF AGRICULTURE
A Two-Year Non-Degree Course in Vocational Agriculture

For twenty years the Massachusetts State College in addition to its degree courses has been conducting non-degree courses for students who wish to get fundamental training for some agricultural or related business. More and more, high school graduates, not otherwise prepared for college entrance, whose inclinations are towards the practical field of agriculture are finding the work of this department of the College well suited to their needs.

The work is divided into nine major programs—Animal Husbandry, Dairy Manufactures, Poultry, Floriculture, Fruit Growing, Ornamental Horticulture, Vegetable Gardening, Wildlife Management and Foods and Food Processing for hotel and restaurant operatives, one of which is selected by the student, depending on the job for which he wishes to secure training.

No entrance examinations are required. Minimum age seventeen years; minimum schooling eighth grade. Two hundred and eighty-one students were enrolled in 1937.

The first year consists of six months' study at the College and six months of required placement training, under the supervision of the College. During the placement period the student is expected to learn much of the practical side of his particular vocation. He is recommended to a position. These positions are on farms, in dairies, greenhouses, poultry plants. The nature of the position depends on the student's particular objective.

The second year consists of eight months' study at the College. On the completion of the course a diploma is granted. Tuition is $50.00 per semester to residents of the Commonwealth. Semester begins October 2, 1939.

For a complete catalog of the Stockbridge School of Agriculture, containing an application blank, write to Director Roland H. Verbeck, Massachusetts State College, Amherst, Mass.

WINTER SCHOOL ENROLMENT, 1938

Abbott, G. Richard	Andover
Abrahamson, David S.	North Attleboro
Ayer, M. Gordon	Longmeadow
Bagg, Vernon S.	South Hadley
Baldassari, Joseph E.	Pawtucket, R. I.
Barnstead, Sidney O.	Saco, Me.
Barry, David V.	East Milton
Bedard, Paul	New Bedford
Bernard, Alton R.	Woburn
Betzner, Henry	New Haven, Conn.
Bohne, Charles O.	Louisville, Ky.
Brant, William	West Springfield
Burk, Frederick C.	Swampscott
Burnett, Harry	Southborough
Callahan, Frank J.	Lowell
Canney, Byron D.	Whately
Caputi, Nicholas	Nutley, N. J.
Carignan, Oswald E.	Woonsocket, R. I.
Casey, Edward J.	Rye, N. Y.
Chace, Alfred M.	Montowese, Conn.
Chaisson, James, Jr.	Natick
Chapin, Orville W.	West Allis, Wis.
Collupy, Leigh P.	Beverly
Connors, John J.	North Andover
Cornish, Geoffery	Vancouver, B. C., Can.
Cronin, Robert	Glens Falls, N. Y.
Davidson, Robert C.	Springfield
Dibuono, Sal	New Rochelle, N. Y.
Doherty, Thomas J.	Greenfield
Edgecomb, Mark L.	Manchester
Eger, Carl	Holyoke
Emerson, Robert D.	New York City, N. Y.
Ericson, Eric H.	Manchester
Factor, Anthony J.	Ellwood City, Penna.
Garvey, Vincent P.	Chelmsford
Geehan, John E.	Walpole
Geier, Max	New Bedford
Goggin, Daniel F.	Seekonk
Goodoff, Andrew	Mexico, Me.
Goodreau, Joseph P.	Palmer
Hamilton, Harry W.	Middleboro
Harris, Edward T.	Milton
Harrison, Donald	Boston
Heath, Charles A.	Waban
Hemwall, Harold	Cambridge
Higgins, Martin C.	Fall River
Hipp, Henry	New Milford, Conn.
Holbrook, George J.	Omaha, Nebr.

Hornstra, James	East Bridgewater
Hyland, Tom	Springfield
Hynes, Joseph H.	Methuen
Jackson, William M.	Framingham
Jones, John A.	Peabody
Keating, Joseph M.	Willimansett
Kelley, Leslie N.	Lynn
King, Alexander L.	Cape Elizabeth, Me.
Krentzman, Isidore	Bridgeport, Conn.
Kuhn, Edward T.	Johnson City, N. Y.
LaFrank, Albert P.	Claremont, N. H.
Lawler, Leonard J.	Easthampton
Lawton, Robert H.	Springfield
Maggi, Joseph	Holyoke
Marshall, Frederick W.	Wellesley
Martin, George	West Cheshire, Conn.
Meeker, Edward W.	Boston
Memmen, Glen E.	Great Barrington
Mirthes, Arthur C.	New York City, N. Y.
Mollison, George	Goshen
Moore, George P.	Greenfield
McKenzie, Edward A.	Winchester
McLay, John J.	North Andover
Nelson, Gustav	Kensington, Conn.
Norman, Noah N.	Pittsfield
O'Doherty, John E.	Stoneham
O'Neil, Charles E.	Salem
Orlando, Angelo G.	Glen Ridge, N. J.
Pelton, H. Fred	Hartford, Conn.
Pierpont, Frederick E.	Waterbury, Conn.
Pimpare, Leo E.	Boston
Pitkin, Amy M.	Brattleboro, Vt.
Reid, Ernest F.	Belmont
Richards, Rosario J.	Salem
Riordan, John J.	Indian Orchard
Riseman, Louis	Reading
Root, J. Whitney	Southwick
Russell, Lloyd	New Haven, Conn.
St. Armand, William J.	Waltham
St. John, George E.	Lee
Sanderson, Walter W.	Greenfield
Satoski, Stephen	Guilderland, N. Y.
Scharrett, John L.	East Taunton
Sheehan, John R., Jr.	Easthampton
Shields, John F.	Osterville
Sinervo, Francis R.	West Springfield
Sowerby, Clifton E.	Marlboro
Stearns, Harold E.	West Natick
Stone, D. Earle	Attleboro

Taylor, Gordon	Sudbury
Thomas, Peter	Maywood, Ill.
Tick, Frank J.	Southbridge
Tirinzoni, Lena J.	Hartford, Conn.
Torok, Julius W.	Noroton, Conn.
Trible, Arnold V.	Bridgeport, Conn.
Voight, Elmer S.	Yonkers, N. Y.
Wade, Arnold	Woonsocket, R. I.
Walker, William W.	West Cummington
Wallace, Clifford	Greene, Me.
Wasko, Walter	Northampton
Weatherhead, Douglas L.	Millers Falls
Whitcomb, Herbert H.	Littleton
White, Jack	Stockbridge
Whitman, Joseph H.	Everett
Willcox, Russell G.	South Egremont
Zacek, Joseph F.	Westfield

Bulletin

MASSACHUSETTS STATE COLLEGE

GRADUATE SCHOOL

1938 - 1939

Bulletin
MASSACHUSETTS STATE COLLEGE

Graduate School Number
1938-1939

The Graduate School Catalogue for the sessions of 1938–39 is part of the Seventy-fifth Annual Report of Massachusetts State College and in conjunction with the general catalogue of the College it constitutes Part II of Public Document 31 (Sec. 8, Chapter 75, of the General Laws of Massachusetts.)

Amherst, Massachusetts

Volume XXX November, 1938 Number 8

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Publication of this Document Approved by the Commission on Administration and Finance

1m. 11-'38. No. 5535.

CALENDAR

1939.

January 23-February 1, Monday-Wednesday	Final Examinations
February 1, Wednesday, 5:00 P.M.	First Semester ends
February 6, Monday, 8:00 A.M.	Second Semester begins
February 22, Wednesday	Holiday, Washington's Birthday
April 1-10, Saturday, 12 M.-Monday, 8:00 A.M.	Spring Recess
April 19, Wednesday	Holiday, Patriots' Day
May 30, Tuesday	Holiday, Memorial Day
May 31-June 9, Wednesday-Friday	Final Examinations
June 9, Friday	Second Semester closes
June 2-5, Friday-Monday	Stockbridge Commencement
June 9-12, Friday-Monday	Commencement
June 15-17, Thursday-Saturday	Entrance Examinations
September 13-15, Wednesday-Friday	Entrance Examinations
September 18, Monday	First Semester begins for Freshmen
September 20, Wednesday, 2:00 P.M.	Opening Convocation
September 21, Thursday, 8:00 A.M.	All class schedules start
October 2, Monday	First Semester begins for Stockbridge School Freshmen
October 3, Tuesday	First Semester begins for Stockbridge School Seniors
October 12, Thursday	Holiday, Columbus Day
November 11, Saturday	Holiday, Armistice Day
November 29-December 4, Wednesday, 12 M-Monday, 8:00 A.M.	Thanksgiving Recess
December 16-January 2, Saturday, 12 M-Tuesday, 8:00 A.M.	Christmas Recess

1940.

January 22-31, Monday-Wednesday	Final Examinations
January 31, Wednesday, 5:00 P.M.	First Semester ends
February 5, Monday, 8:00 A.M.	Second Semester begins
February 22, Thursday	Holiday, Washington's Birthday
March 23-April 1, Saturday, 12 M-Monday, 8:00 A.M.	Easter Vacation
April 19, Friday	Holiday, Patriot's Day
May 30, Thursday	Holiday, Memorial Day
May 29-June 7, Wednesday-Friday	Final Examinations
June 7, Friday	Second Semester Closes
May 31-June 3, Friday-Monday	Stockbridge Commencement
June 7-10, Friday-Monday	Commencement

THE TRUSTEES OF THE COLLEGE

Organization of 1939.

MEMBERS OF THE BOARD.

	TERM EXPIRES
DAVID H. BUTTRICK of Arlington	1939
DAVID J. MALCOLM of Charlemont	1939
JOHN F. GANNON of Pittsfield	1940
DAVIS R. DEWEY of Cambridge	1940
JOSEPH W. BARTLETT of Boston	1941
PHILIP F. WHITMORE of Sunderland	1941
JOHN CHANDLER of Sterling Junction	1942
FREDERICK D. GRIGGS of Pittsfield	1942
NATHANIEL I. BOWDITCH of Framingham	1943
WILLIAM C. MONAHAN of Framingham	1943
JAMES T. CASSIDY of Boston	1944
MRS. ELIZABETH L. MCNAMARA of Cambridge	1944
MRS. KATHARINE G. CANAVAN of Amherst	1945
JOSEPH B. ELY of Westfield	1945

MEMBERS EX OFFICIO

His Excellency CHARLES F. HURLEY, *Governor of the Commonwealth.*
HUGH P. BAKER, *President of the College.*
JAMES G. REARDON, *Commissioner of Education.*
WILLIAM CASEY, *Commissioner of Agriculture.*

OFFICERS OF THE TRUSTEES.

His Excellency, The Governor, CHARLES F. HURLEY of Boston, *President.*
NATHANIEL I. BOWDITCH of Framingham, *Vice-President.*
ROBERT D. HAWLEY of Amherst, *Secretary.*
FRED C. KENNEY of Amherst, *Treasurer.*

The Graduate School Staff.

HUGH P. BAKER, *President of the College.*
FRED J. SIEVERS, *Director of the Graduate School.*
Dean of the College.
Heads of all Divisions.
Heads of Departments in which Graduate Courses are offered.
Professors, Associate Professors and Assistant Professors in charge of Graduate Courses.

The Graduate School Advisory Committee.

FRED J. SIEVERS, *Director of the Graduate School,* Chairman.
WILLIAM L. MACHMER, *Dean of the College.*
LEON A. BRADLEY, *Profesor of Bacteriology.*
JOHN B. LENTZ, *Head of the Department of Veterinary Science.*
CHARLES A. PETERS, *Professor of Inorganic and Soil Chemistry.*
RALPH A. VAN METER, *Head of the Division of Horticulture.*
WINTHROP S. WELLES, *Head of the Department of Education.*

GENERAL INFORMATION.

HISTORY.

Graduate courses leading to the degree of doctor of science were offered in botany under President Clark and in chemistry under Professor Goessmann as early as 1876. No candidate, however, completed the requirements for that degree. It was not until 1892, under President Henry H. Goodell, that courses leading to the degree of master of science were offered. This degree was first conferred in June, 1896, on two candidates. Graduate courses leading to the degree of doctor of philosophy were first offered in 1897, with chemistry, botany and entomology as major and minor subjects. The first degree was conferred on one candidate in June, 1902.

In the early years the graduate work was conducted under the direct administration of the President in conjunction with the four year courses. The demand for advanced work increased, however, and in June, 1908, the trustees made the Graduate School a separate unit in the College and appointed a director. Beginning with July 1, 1930, the responsibilities of the Graduate School were combined with those of the Agricultural Experiment Station. This arrangement is proving mutually beneficial by making the staff and equipment of the Experiment Station available for service in the Graduate School, and in turn providing an opportunity to utilize the services of graduate students in organized research projects.

LOCATION AND LANDS.

Massachusetts State College is located in Amherst, a town of about six thousand people, overlooking one of the most picturesque sections of the Connecticut Valley. From the standpoint of teaching material in the fields of science and agriculture, the location is ideal. Amherst is eighty-eight miles from Boston, fifty miles from Worcester, twenty-five miles from Springfield, eighteen miles from Greenfield and eight miles from Northampton. Busses connect the town with Northampton, Greenfield, Holyoke and Springfield, or it can be reached direct over the Central Vermont Railroad. The campus consists of a tract of approximately seven hundred acres, lying about a mile north of the village center. The College is well provided with modern buildings and equipment, description of which may be found in the general catalogue.

PURPOSE AND SCOPE OF THE GRADUATE SCHOOL.

The purpose of the Graduate School is to provide qualified students with proper guidance in the methods of advanced study and research. Courses leading to the degree of doctor of philosophy, master of science and master of landscape architecture are available. Students who desire advanced courses but who do not wish to become candidates for an advanced degree are also admitted.

Doctor of Philosophy.

Candidates for the degree of doctor of philosophy are required to pursue study in three subjects, one of which is designated as the major, and the others as minors. An original thesis is considered a part of the major subject. The degree is conferred upon graduate students who have met the following requirements:—

1. The devotion of at least three years to three subjects of study and research.
2. The earning of not less than ninety credits of which not less than sixty shall be in the chief or major subject, and not less than fifteen in each of two minor subjects.

3. The preparation of a satisfactory thesis.
4. The passing of final examinations, written and oral, in both the major and minor subjects.
5. The presentation of evidence of a working knowledge of both French and German.
6. The passing of a public oral examination.
7. The payment of all College fees and expenses.

It should be emphasized that the requirements for this degree are not computed primarily in terms of time and credits but that the degree is conferred only upon such students as have reached satisfactory attainment in some special branch of learning.

Master of Science.

Candidates for the degree of master of science are required to pursue study in two subjects, one of which is designated as major and the other as minor. When desirable and approved by the director, the minor may be made up of subjects from more than one department. An original thesis is considered a part of the major subject.

The degree is conferred upon graduate students who have met the following requirements:—

1. The devotion of at least one year to two subjects of study and research.
2. The earning of not less than thirty credits, of which approximately two thirds shall be in the major subject.
3. The preparation of a satisfactory thesis in the major subject.
4. The passing of final examinations, written and oral, in the major subject.
5. The payment of all College fees and expenses.

Master of Landscape Architecture.

Candidates for the degree of master of landscape architecture are expected to conform to the established courses as specified by the department of landscape architecture. The degree is conferred upon graduate students who have met the following requirements:—

1. Work covering at least three years, of which a minimum of one and one-half years must be devoted to study in residence, and a minimum of one year spent in practice outside of the College, specific requirements concerning the nature of such practice to be laid down by the department.
2. Submission of a complete written report on the work done in practice outside of the College.
3. Written approval from the employer as to the quality of service during the period devoted to practice outside of College.
4. Preparation of a satisfactory thesis.
5. The presentation of convincing evidence of genuine aptitude for some branch of landscape architecture as design, construction or management.
6. Completion of final examinations.
7. Payment of all College fees and expenses.

The degree of bachelor of landscape architecture may be earned upon the completion of one year of specialized work in that field. (See page 37.)

ADMISSION.

Admission to the Graduate School will be granted:—

1. To graduates of Massachusetts State College.
2. To graduates of other institutions of good standing who have received a bachelor's degree substantially equivalent to that conferred by this College.

ENROLLMENT FOR A DEGREE.

Admission to the Graduate School is not to be interpreted as implying admission to candidacy for an advanced degree in any given department. Such candidacy is subject to specific requirements laid down by the several departments, and the student must secure the approval of the head of the department in which he desires to major before he can become a candidate for a degree in that subject.

STUDY IN RESIDENCE.

It is understood that, in general, graduate credit will be granted only for courses pursued in residence, that is, in regularly approved courses conducted by a qualified member of the staff of Massachusetts State College.

Under certain conditions, and then only by special arrangement with the director of the graduate school, credit earned elsewhere will be accepted to apply on the requirements for the degree.

Non-Degree Enrollment.

Graduate work may be taken by students who are not candidates for a degree. Such enrollment permits the special privilege of a wider range in the selection of courses. The courses selected should, however, bear an appropriate relation to one another and be within the confines of the preparation of the student. A statement of the subjects chosen must, in each case, be submitted to the director of the Graduate School for approval.

Prerequisites.

In case an applicant has not completed in his undergraduate work as much of the subject he desires to select for his major study as is required of graduates of Massachusetts State College, he will be expected to pursue such undergraduate courses in that subject as the head of the department may consider necessary, without credit toward the advanced degree.

In the case of minor subjects for advanced degrees, credit begins to accrue from the point where the previous training of the applicant ended, whether it be graduate or undergraduate in its rating at this College—subject, however, to such limitations as may be fixed by the department concerned.

General Statement.

A working knowledge of French and German is considered important for successful graduate work in practically all the major lines, and is required for the doctor of philosophy degree. Students not offering modern language for admission will be given an opportunity to acquire same along with their graduate work.

The courses listed under departmental statements in the succeeding pages constitute the principal and characteristic work of the graduate student.

The College reserves the right to make changes in the requirements for degrees without notice.

COURSES OFFERED.

Doctor of Philosophy—Major Subjects.

Courses available as major subjects for the degree of doctor of philosophy:—

Agricultural Economics and Farm Management	Economics
	Entomology

Agronomy
Bacteriology
Botany
Chemistry
Food Technology
Pomology
Poultry Science

Master of Science—Major Subjects.

Courses available as major subjects for the degree of master of science:—

Agricultural Economics and Farm Management
Animal Husbandry
Agronomy
Bacteriology
Botany
Chemistry
Dairy Industry
Economics
Education
Entomology
Floriculture
Home Economics
Horticultural Manufactures
Olericulture
Pomology
Poultry Science
Psychology
Sociology

Master of Landscape Architecture.

Courses available for the degree of master of landscape architecture:—

Landscape Architecture

Minor Subjects.

Courses available as minor subjects:—

Agricultural Economics and Farm Management
Agronomy
Animal Husbandry
Bacteriology
Botany
Chemistry
Dairy Industry
Economics
Education
English
Entomology
Floriculture
Forestry
French
Geology
German
History
Home Economics
Horticultural Manufactures
Landscape Architecture
Mathematics
Olericulture
Philosophy
Physical Education
Physics
Physiology
Pomology
Poultry Science
Psychology
Sociology
Veterinary Science
Wildlife Management
Zoology

Theses.

A thesis is required of each candidate for an advanced degree. It must be on a topic belonging to the candidate's major subject, and must indicate that its writer possesses the ability and imagination necessary to carry on independent, constructive thinking. The following rules should be adhered to in the preparation and presentation of a thesis:—

1. The objective of a thesis should be an attempt to make a real contribution to knowledge and practice. When completed it should be of a quality worthy of publication as a contribution from the department concerned.

2. The thesis, in its completed form, will be judged largely upon the ability of the author to review literature and reach definite deductions; to formulate a problem, plan a method of attack, and work out a solution; and to summarize his material and draw conclusions. Scholastic attain-

ment in writing and presenting the results of the study will also be an important factor in the evaluation. No thesis markedly poor in its English will be accepted.

3. After the student, in consultation with his major adviser (head of the department in which the student selects his major), decides upon a thesis subject, he is required to submit an outline to the director of the Graduate School. The director, with this as a basis, selects from the graduate staff a thesis committee to which the student then submits the outline for approval. This committee will, thereafter, have direct charge of all matters pertaining to said thesis, and it is recommended that the student use the advice available from this source in the progress of his research. The thesis must have the approval of this committee before arrangements are made for the final examination for the degree.

4. Three complete, bound copies of the thesis, including drawings and any other accessories, are required by the graduate school office in order that the files in the director's office, the College library and the department in which the thesis was prepared may be supplied.

5. If the thesis is printed, whether in periodical or book form, the fact that it is a thesis submitted for an advanced degree at Massachusetts State College shall be explicitly stated in the title itself or as a footnote on the front page. Such modifications as may be deemed necessary for publication shall have the approval of the director.

6. Because of the time required to give adequate consideration to the research conducted by the student, it is highly desirable that theses be submitted to the committee, in the case of doctors' theses, not later than March 15, and in the case of masters' theses, not later than May 15 of the academic year in which the degrees are to be conferred. The theses in their final form shall be deposited with the director by June 1.

7. If typewritten, whether designed for publication or to remain in the typewritten form, the size of the sheet, the arrangment of the title page, the general structure of the thesis, the character of the paper, and the binding must conform to definite standards.

A. *Size of sheet.* Size of sheet must measure 8½ x 11 inches.

B. *Form of title page.* The title page must be arranged in this order:—
   a. Subject.
   b. Name of author.
   c. "Thesis submitted for degree of—".
   d. "Massachusetts State College, Amherst."
   e. Date.

   and should be distributed over the page as artistically as possible.

C. Following the title page, the arrangement may take such form, variable of course with the subject matter, as is illustrated below:—
   a. An analytical outline of thesis.
   b. An introductory statement in which the purposes of the author are set forth.
   c. The body of the thesis composed of literature critically reviewed and deductions made, formulation of method of attack or procedure, and results secured. (All literature reviews and any work done by others should be so separated that no question can be raised as to which portion of the thesis represents the original investigation. It should be clearly kept in mind that *compilation* is not considered original investigation.)
   d. Summary and conclusions.
   e. Bibliography. (This should have the approval of the chairman of

the thesis committee before final arrangement.)

f. Acknowledgments.

g. Statement of approval signed by members of the thesis committee.

Paper. See sample in College store.

Binding. See sample of binding in director's office.

8. All theses are the property of the College and subject to the will of e director of the Graduate School.

FINAL EXAMINATIONS.

For the degree of doctor of philosophy final examinations on the minors e given upon the completion of the subjects. In the major subject, a ritten examination, if successfully passed, is followed by an oral exmination in the presence of the graduate staff.

For the degree of master of science, or master of landscape architecre, a final examination in the major subject, which may be written or al, or both, is given by the department concerned.

ESTIMATE OF EXPENSES.

A charge of $50 per semester, payable in advance, which covers tuition, boratory and student health fees, is imposed on students who are resints of Massachusetts. For residents of other states or foreign counies, this charge is $110 per semester. In cases where students carry ss than a full schedule of courses, a special tuition rate is provided. For rposes of definition, all students claiming residence in the State shall time of admission provide the treasurer's office with an official statetent from their town or city clerk as evidence. Also, the student must esent evidence of successful vaccination.

Board should not be in excess of $9 per week, with a minimum of about 5. Rooms for graduate students are not available in the College dormiries, but can be rented in private homes at from $15 to $20 per month. he costs of books and incidentals should not exceed $100 per year.

ASSISTANTSHIPS.

Through a fund set aside for that purpose, the College offers a number graduate assistantships to students. The value of these is limited to 500 per year, and appointment is made for a one-year period. These ppointments are especially suited to students who desire to gain teachg experience and make themselves at least partly self-supporting while ntinuing their education. It should be recognized, however, that, in ses where students render this part-time service in return for the finanal assistance extended, the residence time requirements for the degree question are necessarily longer. Application for appointment to any sistantships should be made to the director of the Graduate School.

FELLOWSHIPS.

The Agricultural Experiment Station in its program of investigation equently finds it desirable to utilize the services of graduate students ualified to do certain types of technical work required in connection with s several research projects. Funds are available for this purpose and ualified students may be elected to such fellowships. Not infrequently is arrangement affords an opportunity for the student to satisfy his esis requirement by completing some unit of work within a larger roject organized in the research program of the Experiment Station.

In recent years industrial concerns have been rather anxious to have rtain investigations undertaken for them by the Experiment Station. or this service they are willing to lend financial support, and in deserv-

ing cases it has proven very desirable to accept and utilize these funds fo fellowship purposes. At present several fellowships are supported on thi basis. These are proving very satisfactory from the standpoint both o the student and the industry supporting the investigation.

GRADUATE COURSES DURING THE SUMMER.

The College offers opportunities to pursue graduate courses during th summer in connection with the regular Summer School. While provisio may be made for special study with several departments during the sum mer period, the scheduled courses are offered primarily for teachers wh seek advanced work in education and closely related subjects for purpose of better preparing themselves for more effective service in the teachin profession. Details regarding courses offered, facilities for study, en vironment, etc., may be found in the Summer School catalogue, a copy o which is available upon request to the director of Short Courses.

DESCRIPTION OF COURSES

Agricultural Economics and Farm Management.

COURSES FOR MAJOR OR MINOR CREDIT.

126. Economics of Agricultural Production. Credit, 3.
Professor Barrett.

155. Marketing Farm Products. Credit, 3.
Professor Lindsey.

156. Fundamentals of Cooperation. Credit, 3.
Professor Lindsey.

157. Agricultural Credit and Land Appraisal. Credit, 3.
Professor Lindsey.

167. Market Problems and Market Price Policies. Credit, 3.

171. Agricultural Economic Theory. Credit, 3.
Professor Lindsey.

175. Farm Organization. Credit, 3.
Professor Barrett.

176. Farm Operation and Advance Farm Organization. Credit, 3.
Professor Barrett.

179. Principles and Methods of Statistics. Credit, 3.
Professor Lindsey.

180. Advanced Statistics. Credit, 3.
Professor Lindsey.

182. Advanced Farm Operation. Credit, 3.
Professor Barrett.

184. Research Methods and Procedure. Credit, 3.

186. Investigations of Problems in Agricultural Economics and Farm Management. Credit, 1-3.
The Department.

190. Seminar. Each Semester, Credit, 1-3.
The Department.

200. Thesis.
The Department.

Agronomy.

COURSES FOR MAJOR OR MINOR CREDIT.

105. Soil Types of Massachusetts.—Lectures and field travel. Credit, 2.

110. Studies in the Culture of Field Crops.—Laboratory, field, or other problems concerning the tillage of field crops. Credit, 3.

115. The Fertilization of Field Crops. Credit, 3.

125. The Improvement of Field Crops.—Readings, discussions, laboratory or field work in the improvement of field crops by breeding and selection. Credit, 3.

135. Nutrition of Field Crops.—Readings, laboratory and greenhouse work on problems of nutrition. Credit, 3.

136. Grasses.—Studies in the history, distribution, characteristics, commercial uses, and nutrition of grasses. Credit, 3.

137. Fine Turf Culture.—Laboratory and field studies in the establishment and culture of turf grasses. Credit, 3.

145. Studies in Soil Physics.—Problems concerning texture, structure, and other physical properties of soils. Credit, 3.

155. Studies in Soil Management.—Study of a wide range of problems arising in the management of soils for crop production. Credit, 3.

160. Soil Technology.—Includes studies of properties, behavior, and technical utilization of soils. Credit, 3.

163. Chemistry of the Soil.—Includes chemical studies of availability of nutrients, base-exchange studies, etc. Credit, 4.

170. Studies of Soil Fertility.—Investigation of the factors and conditions affecting the productivity of soils. Credit, 3.

175. Organic Matter of the Soil.—Includes studies of the origin, properties and methods of maintenance of soil organic matter, and its physical and biochemical relations to soil fertility. Credit, 3.

185. Fertilizers and the Soil.—Concerning the interrelationships of soils and fertilizers when mixed. Credit, 3.

190. Studies in Literature.—Practice in preparing abstracts and summaries of the literature bearing on selected topics. Credit, 2.

200. Thesis.—For students taking major work in Agronomy. Credit, 10-30.

Animal Husbandry.

COURSES FOR MAJOR OR MINOR CREDIT.

110. Nutrition of Farm Animals.—A course dealing with the chemistry and physiology of the digestion, absorption and utilization of feeds. The major portion of the course consists of a study of the literature concerning the phases of nutrition that are of the greatest interest and value to the individual student. Credit, 5.

120. Genetics of Farm Animals.—A course dealing with the inheritance of characteristics in the larger farm animals. The work may be based upon herd book and advanced registry data or it may be of an experimental nature with either small laboratory animals or with the larger farm animals. The student will be expected to make a thorough review and analysis of available data in the field of his choice. Credit, 5.

130. Problems in Livestock Production.—This course will deal with some specific problem in feeding, management, or production of some specific livestock product such as milk, wool, meat, etc. Assistance will be given in outlining the problem and setting up the experimental procedure and the student will be held responsible for collecting and analyzing the data. Credit, 5.

200. Thesis.—Research work in animal husbandry may consist of historical studies of modern breeds of livestock or experimental studies in animal nutrition or genetics. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

50. The Nutrition of Farm Animals.—This course is designed to give the student an understanding of the mechanics of digestion, absorption, circulation, respiration and excretion; the functions of proteins, carbohydrates, fats, vitamins, and minerals in body metabolism; the functions of those endocrine glands primarily concerned with nutrition; the nature and value of the various feed stuffs; and methods of calculating rations in order to meet the requirements of various classes of livestock. 2 class hours. 1 2-hour laboratory period, credit, 3.

51. The Breeding and Improvement of Farm Animals.—This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized for the creation of more beautiful and more efficient animal types.
2 class hours. 1 2-hour laboratory period, credit, 3.

52. Advanced Meat Studies.—This course is designed to impart a knowledge of the fundamental principles involved in buying and efficiently

utilizing meat and meat products. One laboratory per week will be devoted to actual practice and observation in nearby packing plants.
2 2-hour laboratory periods, credit, 2.

53. Beef and Sheep Production.—This course includes studies of the development of the beef and sheep industries, situation and outlook, phases of production, systems of management, herd and flock improvement, feeding management, breeding and equipment. During April and May trips are taken to the leading herds and flocks in New England, thus affording an opportunity for comparisons which will serve in evaluating quality characteristics.
2 class hours. 1 4-hour laboratory period, credit, 4.

75. Horse and Swine Production.—This course includes a study of the development of the breeds of draft and light horses and of swine, and a study of the economic, genetic, nutritional and managerial problems concerned in producing these classes of livestock with particular reference to New England conditions.
2 class hours. 1 4-hour laboratory period, credit, 4.

77. Dairy Cattle and Milk Production.—This course embraces all phases of dairy cattle production and management. It affords an opportunity to seek the solution to the economic, nutritional, genetic and managerial problems concerned in successful dairying. One period per week will be devoted to talks by specialists in the various fields.
4 2-hour laboratory periods, credit, 4.

81. Animal Husbandry Seminar.—Students will prepare original papers and talks on various pertinent topics. Round table discussions of animal husbandry investigational work and practices will be conducted.
1 2-hour laboratory period, credit, 1.

Bacteriology and Physiology.

COURSES FOR MAJOR OR MINOR CREDIT.

100. History of Bacteriology.—Studies in the development of bacteriology from the late seventeenth century to the present time, especially planned to show the developments of bacteriology in relation to agriculture, public health, the arts, industry, and medicine. Credit, 3.

120. Physiology of Bacteria.—Lectures and laboratory on the nature of the bacterial cell and on nutrition and metabolism with emphasis on certain fundamental aspects of physiological processes and activities. Designed for students specializing in bacteriology and open to others who have sufficient chemistry, general biology, and botany. Credit, 5.

130. Soil Bacteriology.—Accurate applications of microchemical methods are demonstrated. Biochemical and biophysical methods for measuring the physiological activities of soil microorganisms are studied. Nitrification, denitriification, and ammonification will be discussed in relation to their influence on soil fertility. Credit, 5.

140. Dairy Bacteriology.—Technical procedures used in establishing sanitation in relation to milk production and supply will be discussed. Modern methods involved in the preparation, control, and preservation of milk and dairy products are studied. Credit, 5.

150. Food Bacteriology.—This course deals with some of the laboratory problems originating in the field of Food Technology, class discussions on collateral reading, demonstrations and advanced laboratory procedures. The laboratory work includes a study of (1) the effect of foods and methods of feeding upon the normal bacteriological flora of the intestine; (2) systematic studies of special groups and bacteria involved in the preparation and in the spoilage of foods. Credit, 5.

160. Hygienic Bacteriology.—Special consideration given to organi-

zation of disease control campaigns, laboratory management, the relationship of serology, immunology, and bacteriology to municipal, rural, and community health. Bacteriological, immunological, and serological procedures will be presented, and there will be discussion of problems showing their use for improving the condition and environment for human and animal life. Credit, 5.

170. PHYSIOLOGY, HUMAN OR ANIMAL.—Study of the physiology of the circulation with special reference to intermediate metabolism; to be followed by a course on the physiology of excretion. This course in physiology may be considered from the standpoint of human or animal physiology, according as the student may elect. Credit, 6.

190. LECTURES AND STUDY OF LITERATURE. Credit, 1 each semester.

200. THESIS.—Some bacteriological problem related to agriculture, food, or public health. Distributed as may be most beneficial for research work. Time and credit by arrangement Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY.

Bacteriology.

31. INTRODUCTORY AND GENERAL BACTERIOLOGY.—Designed to make microorganisms real and significant. The laboratory covers the use and proper care of the compound microscope, the preparation of culture media, methods of sterilizing equipment, the isolation and handling of pure cultures, simple and differential staining, studies on classification and cultural and biochemical studies on type species of pathogenic and non-pathogenic bacteria. Individual practice in the isolation and identification of bacterial forms is a required part of the laboratory assignment. The course aims to provide a basis for bacteriological study and interpretation and to furnish such material as will be valuable in understanding agriculture, domestic science, and public health problems.

2 3-hour laboratory periods, credit, 3.

52. ADVANCED BACTERIOLOGY.—A continuation of Course 31. The identification and differentiation of bacterial species by morphological, cultural, physiological and serological studies. The combined courses give to the student not only a comprehensive picture of various forms of existing bacteria but develop a specialized technique for their cultivation, isolation, and identification.

Prerequisite, Bacteriology 31. 2 3-hour laboratory periods, credit, 3.

61. BACTERIOLOGY. (PUBLIC HEALTH.)—Considers the relation of the human body to its environment in the maintenance of health and the production of disease. The administration and organization of community health, the prevention or control of animal or human diseases of public health significance, are considered. A study of special community health problems and the relationship of these problems to social welfare is discussed. 2 class hours, credit, 2.

62. BACTERIOLOGY. (PUBLIC HEALTH.)—Sanitation and its relation to agriculture, industry and public health. The microbiological features of air, water, soil, sewage, and refuse; industrial hygiene and the control of municipal and rural sanitary projects are considered.

2 class hours, credit, 2.

81, 82. APPLIED BACTERIOLOGY.—These two courses covering a full year's work are designed to give the student a working knowledge of present day applied bacteriology. The work in the laboratory is presented in three distinct sections: (1) soil, (2) food, (3) dairy. In soil, such subjects as the number and development of microorganisms in different soils, factors influencing their growth and activity, and changes wrought upon matter in the production of soil fertility, ammonification, nitrifica-

ion, etc., receive attention. In food, a study of preservation, fermentation, spoilage, and methods of sanitary examination are considered. In dairy, emphasis is placed upon modern methods for examining the sanitary quality of milk and milk products. Groups of bacteria normally present, abnormal and normal fermentation, effect of temperature, and the role of milk in the transmission of disease, are some of the subjects receiving special consideration.
Prerequisite, Bacteriology 52.
2 3-hour laboratory periods, credit, 3 each semester.

85. BACTERIOLOGY. (SEROLOGY.)—This course aims to supplement Bacteriology 52 and is planned to complete work essential for the advanced study in bacteriology and physiological science. This course includes the study, preparation, and standardization of such biological products as antigens, agglutinins, precipitins, hemolysins and complement-fixation bodies, and the use of the same in differential bacteriology and disease diagnosis. Consideration is also given to isohemagglutins and their relation to human blood groups. Class limited to ten students.
Prerequisite, Bacteriology 52. 2 3-hour laboratory periods, credit, 3.

Physiology.

32. PHYSIOLOGY.—This constitutes the introductory work in physiology and is so palnned that those who wish to continue may have some knowledge of the theories and practices of the science. Exercises on basic biological laws are considered, so essential to the comprehension of modern physiology. The study and use of instruments serve to illustrate the various phases presented. Aspects of muscle and nerve physiology, circulation, hemodynamics and alimentation will be considered.
class hours. 1 2-hour laboratory period, credit, 3.

75. PHYSIOLOGY.—This is a continuation of course 32. Physiology of nutrition, including diet, calorimetry, energy exchange, and basal metabolism, followed by work on the physiology of elimination. Studies on lymphatics and ductless glands will be included. This course is especially planned to further physiological applications for students in nutrition, bacteriology, and the biological sciences.
class hours. 1 2-hour laboratory period, credit, 3.
Prerequisite, Physiology 32.

76. PHYSIOLOGY.—This is a continuation of course 75 and is planned to make demonstrations in advanced neuro-muscular physiology, respiration, circulation and in endocrinology. Special attention will be given to the physiology of the special senses, such as taste, touch, sight and hearing.
class hours. 1 2-hour laboratory period, credit, 3.
Prerequisite, Physiology 75.

77. GENERAL PHYSIOLOGY.—This course is planned for those students who have studied organic chemistry and physics. It will be of service to all students in the biological sciences. The discussions and laboratory demonstrations will concern the nature of the processes underlying vital phenomena which are common to most living matter. It will deal exclusively with the fundamental principles which govern activities and life of animals and human beings.
class hours. 1 2-hour laboratory period, credit, 3.
Prerequisites, Physics 25 and 26; Chemistry 51 and 52.

Botany.

COURSES FOR MAJOR OR MINOR CREDIT.

100. PLANT PHYSIOLOGY.—The lectures will consider, under the nutrition of the plant: its chemical structure, absorption of various nutrient substances and their changes in the plant, assimilation and dissimilation

of carbon and nitrogen by autotrophic and heterotrophic plants; under changes in the form of plants: growth and form under constant external factors, the influence of variable external and inner factors on growth form, and development; and under plant movements: the various tropisms, mutations, etc. Supplemental demonstrations, laboratory work and reading.
1 class hour. Credit, 1 each semester

101. PLANT PATHOLOGY.—A general consideration of the history, nature, and causes of plant disease; parasitism, predisposition, immunity degeneration, natural and artificial infection, dissemination, epidemics biologic strains, monstrosities and malformations, proliferation, prevention and control, economics of plant diseases. Supplemental reading and reports.
1 class hour. Credit, 1 each semester

102. PLANT INHERITANCE.—This course is planned to give the student a comprehensive understanding of the principles and facts of plant inheritance. A study is made of plant variations, Mendel's law of heredity the physical basis of heredity as established by chromosome behavior pure lines mutations, species, graft hybrids, etc.
1 class hour. Credit, 1

103. BIOLOGIC RELATIONS.—Consideration of certain phases of the morphological and physiological adaptations of plants with regard to insect visits; the role of thorns, hairs, tendrils, glands, etc.
1 class hour. Credit, 1

105. PHYSIOLOGICAL PLANT PATHOLOGY.—This course considers those plant diseases not due to bacterial or fungous parasites, but resulting from unfavorable physical or chemical conditions of the soil; from harmful atmospheric influences, such as dry air, excessive moisture, hail, wind lightning, frost; from injurious gases and liquids; from lack of or too much light; from wounds. A knowledge of the normal physiology of the plant is required. Demonstrations and assigned readings.
1 class hour. Credit, 1

106. HISTORY OF BOTANY.—An historical survey of the science; lives of noted botanists; history of certain culture plants, such as wheat, corn coffee, potato, rice, and their influence on civilization; reading. By arrangement. Credit, 2

107. METHODS IN DRAWING AND PHOTOGRAPHING FOR THESIS AND PUBLICATION. Credit, 1-2

110. SYSTEMATIC MYCOLOGY.—Morphology and development of typical species representing the orders and families of fungi; practice in identification, collection and preservation of fungi; systems of classification collateral reading.
1 class hour.
2 2-hour laboratory periods, one, or two semesters.
Credit, 3 each semester

111. ADVANCED PLANT PHYSIOLOGY.—The work offered in this course is arranged to meet individual needs. Botany 77 or its equivalent is prerequisite. Credit, 5

112. ADVANCED PLANT PATHOLOGY.—The work offered in this course is arranged to meet individual needs. Botany 75 or its equivalent is prerequisite. Credit, 5

190. COLLATERAL READING.—Extensive reading of botanical literature in English, German and French, designed to give the student a broad knowledge of the science, is required of all major students. Final examinations are based in part upon this reading course. Credit, 5

200. THESIS.—Each major student is required to select a problem in

plant pathology or physiology (in other branches at the discretion of the department) for original investigation, and the thesis must embody a distinct contribution to knowledge. The thesis work counts for not more than 35 per cent of the total number of major credits required for either degree.

COURSES PRIMARILY FOR MINOR CREDIT.

57. MICROTECHNIQUE.—A course in the preparation of microscopic mounts including the celloidin and paraffin methods and involving the use of microtomes and of differential stains.

2 2-hour laboratory periods. Credit, 2.

59. SYSTEMATIC BOTANY OF THE HIGHER PLANTS.—Study of gymnosperms and angiosperms. Lectures deal with the interrelations of the flowering plants and with their ecology, distribution, and economic importance. Laboratory work consists of a critical study of types from the most important natural plant families. Particular emphasis is laid on the flora of Massachusetts. The department herbarium and greenhouses supply material of important tropical forms for study.

2 class hours. 1 2-hour laboratory period. Credit, 3 each semester.

61. THE COMPARATIVE ANATOMY OF GREEN PLANTS.—In the lectures study is directed to the comparative anatomy of green plants from the evolutionary standpoint. Particular emphasis is laid upon the woody forms both living and extinct. Of the latter, the department is fortunate in possessing excellent sets of micro-preparations and lantern slides.

2 class hours. 1 2-hour laboratory period. Credit, 3 each semester.

75. PLANT PATHOLOGY.—Comprehensive study of diseases of plants; training in laboratory methods and technique, including culture work and artificial inoculation of hosts; miscellaneous diagnosis; study of literature and representative life histories of pathogens. Prepares for civil service, experiment station, and college work.

1 class hour. 3 2-hour laboratory periods. Credit, 4 each semester.

77. PLANT PHYSIOLOGY.—Study of the factors and conditions of (a) plant nutrition, including the taking up of water and mineral substances, the assimilation of carbon and nitrogen, and the release of energy due to the processes of dissimilation; (b) plant growth, including the influence of internal and external factors on growth, the development of reproductive and vegetable organs; (c) plant movements, including those due to the taking up of water, and those of both motile and fixed forms in response to external stimuli. Weekly conferences are held, at which students report on assignments to original sources in the literature.

2 class hours. 2 2-hour laboratory periods. Credit, 4 each semester.

81. PLANT ECOLOGY.—Study of plants in relation to their environment, with special emphasis on the newer field studies, which have given increasing insight into the physical and chemical factors as they influence growth and development in the field and the adaptability of plants to changes in their normal environment. The various types of plant formations and successions are studied, as well as the mutual and antagonistic relations of certain plants.

1 class hour. 2 2-hour laboratory periods. Credit, 3.

Chemistry.

COURSES FOR MAJOR OR MINOR CREDIT.

101. INORGANIC PREPARATIONS.—Laboratory. The preparation of chemical products from raw materials. The manufacture and testing of pure chemicals. The laboratory work is essentially synthetic in nature, and is designed to aid in acquiring a more adequate knowledge of in-

organic chemistry than is to be obtained by chemical analysis alone.
Either semester. Credit, 5.
Associate Professor SEREX.

102. ELECTROLYTIC ANALYSIS.—Laboratory. This course includes the separation and determination of some of the common metals such as copper, silver, nickel, lead, cadmium and zinc. Some work on electrometric analysis may also be included such as the titration of iron with dichromate or iron with ceric sulfate and use of the hydrogen, quinhydrone and glass electrodes.
Either semester. Credit, 5.
Associate Professor FESSENDEN.

103. ADVANCED ANALYTICAL CHEMISTRY.—This course consists of special work to meet the needs of the individual student. It may consist of ultimate analysis, micro-analysis, or analysis of definite classes of materials, fertilizers or insecticides.
Either semester. Credit, 3 or 5.
Professor PETERS.

104. ADVANCED PHYSICAL CHEMISTRY.—Laboratory. Measurement of the electrical conductivity of solutions; degree of ionization; ionization constants; per cent hydrolysis of aniline hydrochloride from conductivity measurements; solubility product by the conductivity method; velocity of saponification by conductivity; neutralization point by conductivity; vapor pressure determinations; transport numbers; preparation and properties of colloidal solutions; transition points by dilatometric method; heat of solution of ammonium chloride and potassium nitrate; absorption of iodine by charcoal; determination of hydrogen ion concentration. To each student separate work will be assigned.
Either semester. Credit, 5.
Associate Professor SEREX.

105. ADVANCED ORGANIC CHEMISTRY.—Laboratory. The preparation of compounds not included in courses 51 and 52, such as the Kolbe synthesis of salicylic acid; the synthesis of camphor and of indigo; the preparation of medicinal compounds, e. g., acetanilide, phenacetin and barbituric acids; the preparation of dyes, e. g., rosaniline, malachite green, congo red; the study of the Grignard reaction, etc. To each student, separate work will be assigned.
Either semester. Credit, 5.
Professor CHAMBERLAIN.

106. ADVANCED BIOLOGICAL CHEMISTRY.—Laboratory. An intensive study of special compounds, or processes, involved in the growth or metabolism of either plants or animals, under either normal or pathological conditions. To each student separate work will be assigned.
Either semester. Credit, 5.
Professor RITCHIE.

107. FOOD CHEMISTRY.—A chemical study of the significant constituents in foods: proteins, fats, carbohydrates, food accessories, etc. Methods of analysis as well as their chemical characteristics will be considered. While work will be assigned to meet the needs of the individual at last one period a week will be given over to lecture or consultation. Credit, 5.
Professor RITCHIE.

111. ADVANCED INORGANIC CHEMISTRY.—Lectures and collateral reading. A survey of the fundamental principles of chemistry and a discussion of the descriptive chemistry of the elements based on the periodic table. Attention will be given to some of the less common elements.
Second semester. 1939-40. Credit, 3.
Assistant Professor FESSENDEN.

112. ADVANCED ANALYTICAL CHEMISTRY.—Lectures on iodine as used in analysis. The stability of thiosulfate; the colors with starch; the preparation of arsenic for a standard; the limitations of the dichromate standard; the errors in the reduction of arsenates; the manifold uses of the iodide-iodate reaction; typical processes; micro-methods. The second half deals with hydrogen ion concentration. Buffers, zwitter ion and indicators.
First semester, 1938-39. Credit, 3.
Professor PETERS.

113. ADVANCED PHYSICAL CHEMISTRY.—Selected topics in physical chemistry. A brief survey of the fundamental theories and recent advances in radioactivity, induced radioactivity, colloidal chemistry and catalysis.
Second semester, 1938-39. Credit, 3.
Associate Professor SEREX.

114. ADVANCED ORGANIC CHEMISTRY.—The lectures will vary with alternate year periods, but, in general, will include a review of the field of organic chemistry along with special topics such as, hydrogenation, hydrolysis, diazotization, esterification, oxidation and reduction, etc., essential oils, perfumes and dyes.
First semester 1939-40. Credit, 5.
Professor CHAMBERLAIN.

115. BIOCOLLOIDS.—An introduction to the principles of surface chemistry that apply to colloid systems. Major consideration given to the emulsions and hydrophillic systems encountered in fields of applied biology. Collateral reading and preparation of literature reviews in the student's special field necessary. Credit, 3.

116. CHEMICAL THERMODYNAMICS.—A study of the application of thermodynamics to chemical problems.
Second semester. To be given in 1939 and alternate years.
Credit, 2.
Assistant Professor FESSENDEN.

121. SEMINAR.—Conferences, reports, or lectures.
Each semester. Credit, 1.
Professor RITCHIE.

175, 176. PHYSICAL CHEMISTRY.—Lectures and laboratory work. A year course. Credit, 3 each semester.
Associate Professor SEREX.

179. PHYSIOLOGICAL CHEMISTRY.—Lectures and laboratory work.
First semester. Credit, 4.
Mr. PARROTT.

186. THEORETICAL CHEMISTRY.—Two class hours.
Second semester. Credit, 2.
Professor PETERS.

188. HISTORY OF CHEMISTRY.—Two class hours.
Second semester. Credit, 2.
Professor RITCHIE.

192. SPECIAL INVESTIGATIONS.—A continuation of Course 92, II for graduate students majoring in chemistry. The student will have the opportunity to continue studying the methods of research. Problems of definite character will be assigned to the student in the various fields of chemistry. It will be necessary for the student to report on pertinent literature. Both semesters. Credit determined by work done.
THE DEPARTMENT.

200. THESIS.—Research, and in the case of a degree, the preparation of an acceptable thesis in agricultural, analytical, organic, physiological,

or physical chemistry, under the direction of the professor in charge of the work. Credit determined by work done.

THE DEPARTMENT.

COURSES FOR MINOR CREDIT ONLY.

51, 52. ORGANIC CHEMISTRY.—Lectures and laboratory work. A year course. 4 credits each semester.

Professor CHAMBERLAIN.

61, 62. QUANTITATIVE ANALYSIS.—Lectures and laboratory work. A year course. 4 credits each semester.

Professor PETERS.

Dairy Industry.

The Department of Dairy Industry is housed in its own building, generally known as Flint Laboratory. This building is equipped with modern machinery for the production of market milk, ice cream, butter, and cheese. It has ample laboratory facilities for the carrying on of the various lines of research work of interest to students in dairy industry.

COURSES FOR MAJOR OR MINOR CREDIT.

101. HISTORY AND DEVELOPMENT OF DAIRYING.—A review of the early history of dairying and factors in the industry contributing to its present development. Credit, 3.

102. ICE CREAM PROBLEMS.—A study of existing scientific, technical, and marketing problems in the field of ice cream making. Credit, 3.

103. MARKET MILK PROBLEMS.—Consideration of production, processing, and distribution of milk, the nutritional value of milk, chemical and bacteriological aspects of milk handling. Credit, 3.

104. SURPLUS MILK PROBLEMS.—The economical disposal of seasonal surpluses through cheeses, butter, milk drinks, etc. Credit, 4.

105. DAIRY PLANT MANAGEMENT.—The selection, construction, and arrangement of dairies and dairy machinery, and economical operation of same. Credit, 3.

195. SEMINAR. Credit, 1 each semester.

200. THESIS.—Original research work having a bearing on some important problem in dairying. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

52. MARKET MILK.—A study of the various phases of the market milk industry: sanitary production, transportation, pasteurization and handling in the city plant, marketing, delivery systems, milk and its relation to public health, inspection, milk laws, food value, and advertising. Cultured milk and other milk drinks also are included. Some milk plants are visited. Credit, 4.

75. DAIRY CHEMISTRY.—The various physical and chemical properties of milk, milk products, and their components are studied. Testing and control methods commonly used commercially for milk and dairy products are included; moisture and fat determinations, casein, salt, and acid tests, work with the Mojonnier apparatus, and other applied chemical tests are taken up in the laboratory. Credit, 3.

77. BUTTER AND CHEESE MAKING.—The first half of the semester is devoted to butter making, the remainder to cheese making, condensed and powdered milks. The various phases of the butter industry studied are: separators and cream separation; pasteurization, neutralization, and ripening of cream, preparation of starter cultures; churning, marketing, and scoring of butter; creamery management. The work in cheese making includes cheddar, cream, Neufchatel, cottage, processed cheeses, etc. The manufacture of condensed and powdered milk, and commercial casein is also covered. Credit, 5.

78. ICE CREAM MAKING.—The course includes a study of the principles and practices of ice cream making. The effects of such factors as composition, quality, pasteurization, homogenization, aging and freezing on the finished product are considered. Sherbets, ices, fancy and individual forms, and all flavors of ice cream are studied. Some time is devoted to refrigeration machinery, delivery equipment, and merchandising methods as they are related to the industry. Credit, 4.

79. SEMINAR.—The course consists of a study of research done by the experiment stations, also a review of foreign literature. Students prepare papers on timely dairy subjects. Frequent addresses are made to the class by visiting authorities in dairying. Credit, 1 each semester.

Economics.

COURSES FOR MAJOR OR MINOR CREDIT.

110. ADVANCED ECONOMIC THEORY.—A study of the classical and non-classical theories of value and distribution. Analysis of fundamental concepts and the relation of these to current problems of production, distribution and exchange. Credit, 3.

Assistant Professor GAMBLE.

111. HISTORY OF ECONOMIC THOUGHT.—A general study of the development of economic thought from its ancient beginnings; the contributions of the various schools; recent changes in economic history.

Credit, 3 each semester.

112. BUSINESS FLUCTUATIONS.—A study of business fluctuations and an analysis of the current business cycle theories. Credit, 3.

Assistant Professor GAMBLE.

113. CENTRAL BANKING.—A study of the organization and policies of the major central banks with special reference to the Federal Reserve System. Credit, 3.

Assistant Professor GAMBLE.

125. APPLIED ECONOMICS.—A course offered primarily for high school teachers (others may elect), which is intended to appraise such current economic questions as the business cycle, taxation, banking, international trade reparations, economic planning, and similar problems in the light of economic principles. Credit, 3 each semester.

Assistant Professor GAMBLE.

140. PRINCIPLES AND PROBLEMS OF LAND ECONOMICS.—This course deals principally with the characteristics and classification of land, present and future uses of land, private property and the control over property, land income and the value of land. Credit, 3.

151. PROBLEMS OF PRODUCTION.—A presentation of the industrial relationships and the principles upon which the production of economic goods is based. Credit, 3-5.

MR. COLWELL.

153. MARKETING AND MARKETING PROBLEMS.—A study of the forces and conditions which determine prices and the mechanism, methods, and problems concerned with transportation, storing and distributing goods. Credit, 3.

Professor CANCE.

155. THE FUNDAMENTALS OF COOPERATION.—History, principles and business relations. (1) A survey of the development, methods, and economic results of great cooperative movements; (2) the organization of producers and consumers abroad, and the present aspects and tendencies in the United States; (3) the principles underlying successful cooperative endeavor and practical working plans for cooperative associations. Credit, 3.

Professor CANCE.

156. SPECIAL PROBLEMS IN COOPERATION FOR ECONOMIC PURPOSES.—Study, original investigation, and discussion. Every third year, beginning 1933. Credit, 3 each semester.
Professor CANCE.

160. PUBLIC UTILITIES AND THEIR REGULATION.—The study will include the problem of social control of monopolies and industries affected with a public interest. Credit, 3.
The DEPARTMENT.

161, 162. PUBLIC ADMINISTRATION.—A general survey of the field, the principles and the relationships of public administration.
Credit, 3.
Assistant Professor ROHR.

163. POLITICAL SCIENCE.—Nature and methods of political science; theory of the state; forms, ends and purposes of government; law; constitutions, etc. Credit, 3.
Assistant Professor ROHR.

175. CURRENT ECONOMIC PROBLEMS AND LITERATURE.—Department seminar throughout the year. Credit, 1-3 each semester.
Professor CANCE.

176. PRINCIPLES OF TRANSPORTATION.—The development of highway, waterway, and railway transportation, and its relation to the development of the country; the principles governing the operation and control of transportation agencies; present-day problems. Lectures, text, and field work. Credit, 3.
Professor CANCE.

178. PUBLIC FINANCE.—A study of the principles underlying public expenditures, public borrowing and taxation. Credit, 3.
Assistant Professor GAMBLE.

179. LABOR PROBLEMS.—Reading and investigation. By arrangement. Credit, 3.
Assistant Professor GAMBLE.

180. SPECIFIC TRANSPORTATION PROBLEMS.—Original study, reading, and reports on certain transportation problems. Alternate years, odd.
Credit, 3-5.
Professor CANCE.

182. ADVANCED BUSINESS ACCOUNTING.—This course covers the problems of partnership and corporation accounting. Considerable time is spent on problems in amortization, depreciation, and the preparation, analysis and interpretation of financial statements. Credit, 3.
MR. COLWELL.

185. ECONOMIC INSTITUTIONS AND PRACTICE IN RELATION TO THE STATE.—Studies in farm relief measures, taxation, bounties, subsidies, government control of commerce and industry. Credit, 2-5 each semester.
Professor CANCE.

191, 192. INVESTIGATIONS IN VARIOUS PROBLEMS RELATED TO ECONOMICS.—Credits to be determined by time spent and reports submitted.

193. SEMINAR.—Problems of government and public administration.
Credit, 3.
Assistant Professor ROHR.

200. THESIS.—Research work in economics will be developed by four principal methods; namely: historical, statistical, accounting, and general field investigation. In all instances mastery of research methods includes facility in investigation, tabulation, and interpretation of results.

COURSES FOR MINOR CREDIT ONLY.

54. Corporation Finance.—Types of business organization. Types of securities used for raising capital. Financial structure of the various types of concerns. Administration of income-control; holding company finance; and current control legislation are considered. Credit, 3.

Mr. Colwell.

55. Economics of Consumption.—The purpose of this course is a consideration of the importance of consumption in modern industry and commerce. It includes a study of the laws of consumption, standards of living, sources and factors determining family incomes, and of the administration of these incomes as shown by the expenditures of the nation and of various groups. The relation of consumption to the problems of population and to the development of society is also studied. Lectures, assigned readings, and class discussions. Credit, 3.

Professor Cance.

77. Economics of Foreign Trade.—A study of the principles and practices of international trade, including a survey of historical trends of the foreign trade of the United States; the business methods of foreign traders, foreign exchange. Textbook, lectures, class discussion. Credit, 3.

Assistant Professor Gamble.

81. Elementary Business Accounting.—This course aims to give the student an elementary working knowledge of the principles underlying the accounting system in the gathering, analysis, and interpretation of accounting data and the methods used in accounting and preparing the usual types of business statements for individual proprietorship businesses and partnerships. The use of accounting records as a means of business control, which is emphasized in this course, should be of special value to those students who will later be employed in managerial capacities. Credit, 3.

Mr. Colwell.

85. Business Law.—Land, titles, public roads, contracts, commercial paper, and distinctions between personal and real property. Text, written exercises, lectures, and class discussions. Credit, 3.

Assistant Professor Smart.

Education and Psychology.

COURSES FOR MAJOR OR MINOR CREDITS WITH MAJOR ENROLLMENT IN EITHER GROUP OF SUBJECTS.

Courses for satisfaction of a minor may be selected with credit as indicated, from the undergraduate list in the annual college catalogue, except those numbered 26, 54, 65, and 74, provided pre-requisites have been satisfied. In addition to regular class hours, graduate students shall, at the option of the instructor, meet the instructor for a specified number of hours per semester in each undergraduate subject for discussion of supplementary assignments.

Beginning in September, 1938, each graduate student majoring in Education or Psychology, in addition to course and thesis requirements, will be expected to pass successfully a comprehensive written examination in Education or Psychology.

Education.

Before being admitted to candidacy for the degree with a major in Education, the student must have

(1) two majors (18 hours each) or one major and two minors (12 hours each) in the subject-matter fields to be taught.

(2) approximately 15 hours of such fundamental courses as 54, 65, 74, and 80 listed in the undergraduate catalogue. Experience in teaching may take up part of this requirement at the discretion of the department.

Courses for major credit may be selected from the following list:

102. THE DEVELOPMENT OF PUBLIC EDUCATION IN MASSACHUSETTS.—The origin and growth of all types of education under public control from earliest colonial days to the present, with legislation, policies and persons involved. By arrangement. Credit, 2.
Professor WELLES.

103. PROBLEMS IN VOCATIONAL TEACHING.—The course deals with problems out of the experiences of vocational teachers in Massachusetts. Constructive assignments bearing upon individual experiences are worked out in harmony with the campaigns for better teaching in vocational schools. Credit, 3.
By arrangement.
F. E. HEALD of Vocational
Division, State Department of Education.

104. PRINCIPLES OF VOCATIONAL EDUCATION.—A survey of the objectives, history and legal requirements of vocational education in the United States. Credit, 2.
By arrangement.
F. E. HEALD of Vocational
Division, State Department of Education.

105. ORGANIZATION OF A PUBLIC SCHOOL PROGRAM.—Practical situations faced by superintendents and supervising principals in which things have to be done to set the school machinery in motion. Such considerations as housing, finance, staff, schedule, etc. are worked out to suit a specific community.
Credit, 2.
By arrangement.
Professor WELLES.

107. RURAL AND ELEMENTARY GRADED SCHOOLS.—The place rural education still occupies, changes in process, introduction of arts, health programs, curriculum, etc. The problems of principal of graded school, staff, transportation, lunches, vocational program, extracurricular matters, community relations, etc.
Credit, 2.
Professor WELLES.
Mr. PURVIS.

110. CONTEMPORARY EDUCATION.—Comparative studies of education involving European and United States systems. Interviews, reading, reports. Credit, 2.
By arrangement.
Professor WELLES.
Mr. PURVIS.

120. SCHOOL LAWS OF MASSACHUSETTS.—A review of the legal relations of the school personnel covering the usual experiences in school and community, presented in a series of selected cases having the support of court decisions. Credit, 2.
By arrangement.
Professor WELLES.

137. SOCIALIZED EDUCATION.—Discussion of the objectives and the various factors involved in a system of education for increasing its social values. A view of education that tries to offset the effects of present idea of individualism. Credit, 2.
By arrangement.
Professor WELLES.

145. Conflicting Principles in Teaching.—A critical analysis of many dualisms in teaching principles in which there is an apparent conflict between two sound ones and an attempt to find the best way to capitalize the good of both. Credit, 2.

Professor Welles.

167. History of Education.—A survey of educational objectives and practices extending from early times to the present, emphasizing those movements that have most definitely influenced education in many countries. Credit, 2.

Mr. Purvis.

178. Apprentice Teaching in Agriculture.—An opportunity offered occasionally to study this type of vocational education by participating in it. The work is that of an assistant teacher under supervision with a schedule of classes to teach and a prescribed line of study to complete. For one or two full semesters off campus. Credit, 3.

By arrangement.

Professor Welles.

Assisted by F. E. Heald of the Vocational Division, State Department of Education.

179. Educational Tests and Measurements.—The most serviceable tests and scales for measuring school achievement are considered; construction, administration, and interpretation and uses of results are studied and practiced. Credit, 2.

Mr. Purvis.

181. Curriculum Construction in Secondary Schools.—A study of the principles and techniques involved in curriculum building. Recent programs will be studied and evaluated. Readings and reports.

Credit, 2.

By arrangement.

Mr. Purvis.

182. Secondary School Administration.—This course deals with important problems of secondary school administration taken from actual situations in schools. The general principles involved in supervisory programs, in finance and maintenance, in teacher relationships, in pupil groupings and organizations, etc., are discussed and evaluated.

Credit, 2.

Mr. Purvis.

184. Secondary Education.—The course gives attention to the aims, relations, organizations, and functions of the high school and the activities that carry these out through curricula, schedules and extra-curricular organizations. Credit, 2.

Mr. Purvis.

191. Educational Research and Statistics.—The principles and methods of research with special emphasis upon the technique used in education and psychology. Statistics are studied chiefly from the standpoint of reporting and understanding the results of research. Required in first semester of students who anticipate completion of a thesis in the current year. Credit, 2.

Mr. Purvis.

200. Thesis.—A completed piece of work on an accepted educational problem with necessary review of literature in its field. Required of all students for the advanced degree. (Prerequisite 191.) Credit, 8.

By arrangement.

Professor Welles and Mr. Purvis.

Psychology.

151. Experimental Psychology.—A survey of important experi-

ments in psychology. Special attention is given to the techniques of experimentation and to the apparatus employed. The content of the course is determined partly by the interests of the members of the class.

Credit, 2.

Assistant Professor NEET.

152. PHYSIOLOGICAL PSYCHOLOGY.—This is a study of the physiological correlates of normal and abnormal mental conditions and behavior. Special reference is given to sensory, motor and association processes.

Credit, 2.

Assistant Professor NEET.

153. SURVEY OF PSYCHOLOGY.—A survey of the present status of the fields, schools, and major problems of psychology. The principal methods of psychological research are outlined. Credit, 2.

Assistant Professor NEET.

154. EDUCATIONAL PSYCHOLOGY.—This course deals with the psychological theories involved in the solution of various educational problems. An attempt is made to criticize and evaluate educational theory and practice in this light. Credit, 2.

By arrangement.

Professor GLICK.

164. SEMINAR IN PSYCHOLOGY.—Arranged to include phases of psychology not covered in the outlined courses and also to provide opportunity for greater specialization than the outlined courses may afford.

Credit, 2.

By arrangement.

Professor GLICK and Assistant Professor NEET.

180. INDUSTRIAL AND BUSINESS PSYCHOLOGY.—The course aims to develop an understanding of the principles and techniques involved in employment, in personal problems, and in the treatment of problems of work, fatigue and motivation. The psychology of advertising and selling will also be considered. Credit, 2.

Assistant Professor NEET.

185. ABNORMAL PSYCHOLOGY AND MENTAL HYGIENE.—A study of the different types of disorders in human behavior relative to causes, classification, prevention, and treatment. A critical study is made of the various theories and practices of mental hygiene. Credit, 2.

Assistant Professor NEET.

186. CHILD PSYCHOLOGY.—A study of child and adolescent behavior with special reference to the problems of teachers and parents.

Credit, 2.

Assistant Professor NEET.

187. APPLIED PSYCHOLOGY.—This is a study of the application of psychological principles to various phases of life. Some of the topics considered are personality, development of the emotions, interests, attitudes, social behavior, and legal psychology. Various procedures used in clinical psychology will be considered. Credit, 2.

Assistant Professor NEET.

189. PSYCHOLOGY OF GUIDANCE.—A study of the various factors involved in guidance programs in general. Interests, attitudes, and general personality tests are studied and the psychological devices for measuring these are also considered and applied. Practice is given in administering and scoring tests, and statistical devices are used to interpret results.

Credit, 3.

Professor GLICK.

193. THEORY OF MENTAL TESTS.—A critical study of the various types of tests from the psychological, philosophical, and practical points of view. Credit, 2.

By arrangement.

Professor GLICK.

195. PROBLEMS IN PSYCHOLOGY.—Affords an opportunity for study in ny special field of psychology. Credit, 2.
Professor GLICK and Assistant Professor NEET.

200. THESIS.—In psychology. Credit, 10.
Professor GLICK and Assistant Professor NEET.

Philosophy.

161. HISTORY OF PHILOSOPHY.—A study of the development of Westrn thought in general from the time of the early Greeks up to the ecent past. Credit, 2.
Professor GLICK.

162. FUNDAMENTALS OF PHILOSOPHY.—A study of the various current ypes of philosophy with emphasis upon evaluation and criticism. Credit, 2.
Professor GLICK.

163. PHILOSOPHY OF EDUCATION.—A criticism and evaluation of the arious theories and practices in education viewed in the light of historial perspective and present-day science and theory. Credit, 2.
By arrangement.
Professor GLICK.

164. ETHICS.—A critical study of the fundamental ethical theories nd practices both of the past and present, with an attempt to evaluate ach in the light of present knowledge and social demands. Credit, 2.
Professor GLICK.

197. SEMINAR IN PHILOSOPHY.—Arranged to include phases of philosphy not covered in the outlined courses and also to provide opportunity or greater specialization than the outlined courses may afford. Credit, 2.
By arrangement.
Professor GLICK.

198. PROBLEMS IN PHILOSOPHY.—The subject matter centers around ogic and deals primarily with various methods of investigating truth. Credit, 2.
Professor GLICK.

Entomology and Zoology

COURSES FOR MAJOR OR MINOR CREDIT.

Entomology.

The credits for the courses listed range in number from 1 to 4.

101. Insect embryology; polyembryony; parthenogenesis, paedogenesis, heterogeny. Mr. SHAW.

102. Advanced insect morphology.
Professor CRAMPTON.

103. Ancestry and development of insects, including fossil forms.
Professor CRAMPTON.

104. Advanced insect histology. Mr. SHAW.

105. Animal luminosity; chemistry and physics of insect colors.
Assistant Professor SWEETMAN.

106. Variation in insects; dimorphism and polymorphism; teratology, hermaphroditism and gynandromorphism; hybrids.
Professor ALEXANDER.

107. Advanced insect physiology
Assistant Professor SWEETMAN.

110. Mimicry; relation of insects to plant pollination; insect behavior.
Professor CRAMPTON.

111. Insect architecture; insect products of value to man.
Professor CRAMPTON.

112. Geographic distribution of animals, with particular reference to insects; insect migrations.
Professor ALEXANDER.

113. Advanced biological control of insects and weeds.
Assistant Professor SWEETMAN.

114. Advanced animal ecology.
Assistant Professor SWEETMAN.

115. Chemical, cultural, and mechanical control of insects.
Assistant Professor SWEETMAN.

116. Insect photography and methods of preparing illustrations.
Assistant Professor SWEETMAN.

117. Field and laboratory methods in entomological research.
Assistant Professor SWEETMAN.

118. Legislation regarding insects and insecticides.
Assistant Professor SWEETMAN.

125. History of entomology and classifications.
Professor CRAMPTON.

126. Lives and works of prominent entomologists.
Professor ALEXANDER.

127. Abundance of insects; important public and private collections.
Professor ALEXANDER.

128. Type categories; genotypes, types of species; leading specialists in the various orders of insects.
Professor ALEXANDER.

129. The international code of zoological nomenclature and the opinions delivered thereon.
Professor ALEXANDER.

140. COCCIDOLOGY.—A study of the scale insects, their structure; habits; technique of mounting; identification; control.
2 2-hour laboratory periods. Credit, 2.
Professor CRAMPTON.

141. CLASSIFICATION OF MINOR ORDERS OF INSECTS.—Taxonomy of groups belonging to the smaller orders.
1 2-hour laboratory period. Credit, 1.
Professor ALEXANDER.

180. SEMINAR.—Reports on the current literature of entomology; special reports by resident and visiting speakers. Held in conjunction with the regular monthly meetings of the Fernald Entomological Club.

200. THESIS.—Original work on one or more topics in insect morphology, ecology, systematic entomology, or in the fields of medical entomology, insect physiology, insecticides, biological control or apiculture. The thesis requires from one-half to two-thirds of the total working time of the student in his major field.

COURSES FOR MINOR CREDIT ONLY.

53, 80.	APPLIED ENTOMOLOGY.	Credit, 6.
55, 56.	INSECT TAXONOMY.	Credit, 6.
57.	INSECT MORPHOLOGY.	Credit, 4.
66, 85.	APICULTURE.	Credit, 6.
72.	FOREST ENTOMOLOGY.	Credit, 3.
74.	MEDICAL ENTOMOLOGY.	Credit, 2.
79.	INSECT ECOLOGY.	Credit, 3.
81.	INSECT PHYSIOLOGY.	Credit, 3.
87, 88.	SPECIAL PROBLEMS.	Credit, 1-3.

COURSES FOR MAJOR OR MINOR CREDIT.

Zoology.

100. ADVANCED INVERTEBRATE ZOOLOGY.—Types of invertebrates commonly found in ponds, streams, and bogs; life history studies, rearing of immature stages, special problems. One collecting trip per week. Prerequisites, Zoology 69 and 70 or equivalent. Credit, 3.
Miss TRAVER.

105. THE PHYLOGENY AND MORPHOLOGY OF ARTHROPODS OTHER THAN INSECTS.—Especial attention is given to the grouping of Arthropods on the basis of morphological characters that are of taxonomic importance. This work is supplemented by assigned reading in literature dealing with the subject. Credit, 3.
Professor CRAMPTON.

114. ADVANCED ANIMAL ECOLOGY.—An advanced course dealing with the fundamentals of environments. Detailed field studies of the biotic and physical conditions of various environments are given. Ordinarily offered in Fall Semester only. Credit, 2. or more
Assistant Professor SWEETMAN.

120. EXPERIMENTAL EMBRYOLOGY.—Lectures, seminar reports and laboratory work dealing with the chief factors in the mechanics and physiology of development: The germ cells; fertilization, establishment of the primary axis; embryonic induction, and differentiation. Prerequisites, Zoology 75 and 76 or equivalent. Credit, 3.
Assistant Professor WOODSIDE.

130. APPLIED AQUATIC BIOLOGY.—Stresses the application of biological principles to the management of fish. The principles of biological analysis, estimation of the biological potential, seasonal changes with concurrent phenomena, and methods for managing populations of animals in accord with these factors are studied. Enrollment by permission of instructor. Credit, 3.
Assistant Professor WARFEL.

140. NATURAL HISTORY METHODS.—A survey of modern practices in the field. This will involve a study of visual education, trailside museums, nature trails, and exhibitions of natural products. The making of lantern slides, charts, displays, and the working out of specific problems will be arranged according to individual needs. Hours by arrangement. Credit, 3.
Professor VINAL.

150. SPECIAL PROBLEMS. Credit, Variable.
The DEPARTMENT.

155. SEMINAR. Credit, 1.
The DEPARTMENT.

200. THESIS. Credit, Variable.
The DEPARTMENT.

COURSES FOR MINOR CREDIT ONLY.

65, 66. COMPARATIVE VERTEBRATE ZOOLOGY. Credit, 3 each semester.

69, 70. COMPARATIVE INVERTEBRATE ZOOLOGY. Credit, 3 each semester.

75, 76. VERTEBRATE EMBRYOLOGY. Credit, 3 each semester.

80. ORNITHOLOGY. Credit, 3.

Floriculture.

COURSES FOR MAJOR OR MINOR CREDIT.

A definitely outlined major or minor in floriculture is not catalogued at present but such a course may be arranged for individual students.

The nature of the work to be taken up will depend upon the previous training and the type of problem desired by the candidate. Application should be made to the head of the department.

126. GARDEN MATERIALS.—Studies of specific plants or groups of plants which are used in gardening work. Questions concerning nursery methods of handling such plants are also included. Credit, 3.

150. CURRENT LITERATURE.—A review of scientific literature relating to floricultural practices, including various phases of greenhouse management, soils, fertilizers, plant propagation, insect pest and disease control, and other pertinent subjects. Credit, 3.

175. COMMERCIAL FLORICULTURE.—Problems relating to factors concerned with the commercial production of flowers and plants under glass. Opportunity is also given for study of factors concerned with methods of distribution. Credit, 3.

179. CONSERVATORY PLANTS.—A consideration of subjects dealing with plant materials which are used primarily in conservatories for display purposes and in gardens in warmer climates. Credit, 3.

190. HISTORY OF FLORICULTURE AND FLORICULTURAL LITERATURE.—Consideration of men and events that have influenced the development of floriculture. Brief survey of floricultural literature. Required of all graduates in floriculture. Credit, 3.

200. THESIS.—For candidates taking major work in floriculture. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

51. GREENHOUSE MANAGEMENT. Credit, 3.
52. FLORAL ARRANGEMENT. Credit, 3.
75. COMMERCIAL FLORICULTURE. Credit, 3 each semester.
79. CONSERVATORY PLANTS (1940-41). Credit, 2.
81. HERBACEOUS GARDENS AND BORDERS (1939-40). Credit, 3.
82. SEMINAR. Credit, 3.

Food Technology.

Opportunity for advanced study in food technology is provided in order that qualified students may better prepare themselves to serve the numerous industrial interests engaged in providing the consuming public with a more desirable food supply. The plan for study arranged for this major while intended to be flexible requires the student to confine himself largely to the graduate courses offered in the following fields: Bacteriology, Chemistry, Dairy Industry, Horticultural Manufactures, and Human Nutrition. These courses, if properly selected, will satisfy both major and minor requirements. The proportionate contribution of each department will depend upon the student's special interests within the field but a minimum of six credits must be earned in each of the departments contributing to this major. Candidates for a degree in this major are assigned to an Advisory Committee composed of representatives of the departments concerned with the Director of the Graduate School as Chairman. This Committee will direct the student's program in the hope that a procedure may be arranged that will provide most adequate facilities for the expression of individuality. The general requirements for a degree in food technology conform to those specified for the doctor of philosophy degree as provided by several departments except that this major offers a wider range of subject matter. Students interested should consult the Director of the Graduate School.

Forestry and Wildlife Management.

COURSES FOR MAJOR OR MINOR CREDIT.

Wildlife Management.

101. History and Ecology of Wildlife.—A quantitative study of te life histories and natural habitats of wild animals. Credit, 3.

102. Administrative Problems of Wildlife.—The relationships of yld animals to economic land use and the measures used in the admin- iration of wildlife resources. May include field surveys. Credit, 3.

200. Thesis. Credit, 10.

(The nature of this subject makes it desirable to have properly selected ciurses in other departments contribute to this major. Students are, terefore, requested to contact their major advisor before proceeding vth registration).

COURSES FOR MINOR CREDIT ONLY.

65. Principles of Wildlife Conservation. Credit, 3.

Forestry.

COURSES FOR MINOR CREDIT ONLY.

55. Forest Mensuration. Credit, 3.

56. Principles of Silviculture. Credit, 3.

58. Forest Economics and Policy. Credit, 3.

59. Forest Economics.—The use of land for forest purposes in New ligland with special reference to the recreational and esthetic aspects c such use. Individual problems with conferences and assigned readings. Credit, 3.

60. Forest Management.—A study of the small unit forest in New ligland with special reference to the determination of the volume and ilue of the growing stock and its proper utilization. Individual prob- lns with conferences and assigned readings. Credit, 3.

61. Forest Improvement.—A study of the intermediate cuttings and cher practical silvicultural methods applicable in the improvement and inovation of New England forest stands. Field work, conferences and ssigned readings. Credit, 3.

75. Forest Utilization.—A study of the uses of wood with special iference to the tree species of New England. Emphasis will be placed c individual field work and library research in the manufacture, mer- candising, and distribution of forest products. Credit, 3.

Geology.

COURSES FOR MINOR CREDIT ONLY.

52. Descriptive and Determinate Mineralogy. Credit, 3.

61. Elements of Petrology. Credit, 3.

62. Historical Geology. Credit, 3.

101, 102. Special Problems. Credit, 3 each semester.

History and Sociology.

History.

COURSES FOR MAJOR OR MINOR CREDIT.

161. Ancient Civilizations.—Given in alternate years. 1939-40. The ncient Near East and Greece. Credit, 3.

Professor Mackimmie.

163. ANCIENT ROMAN HISTORY.—Given in alternate years. 1938-39.
Credit, 3.
Professor MACKIMMIE.

165. NINETEENTH CENTURY ENGLAND.—Victorian society and ideals; Industrial Revolution and its effects; growth of democracy. Emphasis on social conditions and thought movements. Given in alternate years. 1939-40.
Prerequisite, History 32 or 54. Credit, 3.
Assistant Professor CALDWELL.

167. STUART ENGLAND.—The development of limited monarchy is treated, but particular emphasis is placed on social, religious, and intellectual aspects of English life in the period. Wide reading in contemporary sources.
Prerequisite, History 32 or 54. Credit, 3.
Assistant Professor CALDWELL.

171. HISTORY OF AMERICAN FOREIGN POLICY.—A survey of major problems and policies in American foreign relations.
Prerequisites, History 59 and 60 or equivalent. Credit, 3.
Assistant Professor CARY.

175. MEDIEVAL EUROPE.—Europe from the barbarian invasions to the Renaissance. Social and economic conditions, development of national monarchies, the Church and religion, medieval culture. Credit, 3.
Assistant Professor CARY.

176. THE HISTORY OF THE RENAISSANCE.—The later Middle Ages. The Church at the height of power. The rise of nationalities. The Italian towns. The New Learning and its relation to Art, Science, Invention. Geographical Discoveries. Spread and effects of the Renaissance.
Credit, 3.
Professor MACKIMMIE.

182. PROBLEMS IN AMERICAN HISTORY.—A course for those who wish advanced work. Selected problems will be investigated through the study of source material and extensive reading in secondary literature.
Credit, 3.
Assistant Professor CARY.

200. THESIS.—A thesis based on accepted standards of research and interpretation. Credit, 10

COURSES FOR MINOR CREDIT ONLY.

52. GOVERNMENT.—Forms and methods of governments of Europe; historic types and theories of government; progress and problems of democracy, and new reform movements in organization and administration; new tendencies towards social legislation and extension of governmental control. Credit, 3
Professor MACKIMMIE.

53. EUROPE FROM 1500 TO 1830.—The political and social history of the principal countries of Europe from 1500 to 1830. Credit, 3
Professor MACKIMMIE.

54. EUROPE SINCE 1830.—The rise of nationalism and imperialism; the unification of Italy and of Germany; the Third French Republic; European expansion; the Russo-Japanese War; The World War.
Credit, 3
Professor MACKIMMIE.

59. HISTORY OF THE UNITED STATES 1763-1865.—Emphasis on westward expansion, social and economic change as factors influencing political development. Credit, 3
Assistant Professor CARY.

60. History of the United States Since 1865.—Continuation of History 59. Credit, 3.
Assistant Professor Cary.

Sociology.

COURSES FOR MAJOR OR MINOR CREDIT.

153. Anthropology and Culture.—A study of prehistoric human life and culture. Credit, 3.
Assistant Professor Cutler.

154. Civilization and Culture.—A study of human social and cultural development, including agricultural, with reference to the sources of our knowledge; attention is given to the results of recent scholarship in this field. Credit, 3.
Assistant Professor Cutler.

175. Social Reforms.—An appraisal of present-day efforts to adjust our social conditions, in country and city, to the situation created by the industrial revolution; a study is made of recent literature on this subject; social case work is defined. Credit, 3.
Assistant Professor Cutler.

177. Sociological Field Work.—Students, under direction of the instructor, analyze and organize such sociological knowledge as they acquire through their own social service experience, and include all in a comprehensive report; projects must be approved in advance by the instructor; methods of research are studied. Credit, 3.
Assistant Professor Cutler.

179. Seminar.—Graduate students render reports on research in which they engage, and upon selected portions of current sociological literature. The reports serve as the basis for general discussion.
Credit, 2.
Assistant Professor Cutler.

182. American Standards of Living.—A study of the relations of life to people's ideals and income. Credit, 3.
Assistant Professor Cutler.

183. Social Conditions of Old World Life.—A sociological investigation of life in Europe, the Orient, and the Far East; co-operative enterprise in Denmark; agriculture in China after one hundred twenty generations; racial traits. Credit, 3.
Assistant Professor Cutler.

187. Town and Village Life.—The agricultural village; the small town in relationship to its environing neighborhoods; rurbanization; part-time farming. Credit, 3.
Assistant Professor Cutler.

188. The Modern City.—A survey of industrial and mercantile centers with their problems of poverty, health and sanitation, planning and zoning, the "unearned increment," and disrupted primary groups; the social, administrative and economic organization of cities; metropolitan planning. Credit, 3.
Assistant Professor Cutler.

189. Utopias and Other Social Movements.—A study of utopias in literature and in fact; the literature of rural life; contemporary social movements. Credit, 3.
Assistant Professor Cutler.

190. Local Government.—Proposed improvements in local government. Credit, 3.
Assistant Professor Cutler.

191. COMMUNITY LEADERSHIP.—Qualities and methods making fo successful leadership. Credit, 3

Assistant Professor CUTLER.

192. SOCIAL CONDITIONS IN THE CARIBBEAN REGION.—A sociologica study of life and industry in the American possessions and protectorates relation of the West Indies to the United States; the peon mind. Credit, 3

Assistant Professor CUTLER.

193. THE LEAGUE OF NATIONS.—Social and agricultural problems i their international aspects. Credit, 3

Assistant Professor CUTLER.

200. THESIS. Credit, 10

Home Economics.

COURSES FOR MAJOR OR MINOR CREDIT.

101. PROBLEMS IN NUTRITION.—Adapted to meet the interests an needs of individual students. These studies might include an applicatio of the principles of chemistry, psychology and physiology to nutrition child nutrition, dietotherapy, nutrition in relation to health education Credit, 3

104. ADVANCED NUTRITION.—A study of nutrition from both the chem cal and physiological aspects with emphasis on the metabolism of protein and related compounds, lipoids, carbohydrates, minerals, and vitamins Recent advances in each field of nutrition research are discussed. Thi course is available to graduate students majoring in related fields as wel as to majors in Nutrition provided they offer the necessary prerequisites Prerequisites, Chemistry 79; Physiology 32. Credit, 3

111. NUTRITION SEMINAR.—A review of current literature on selecte subjects and the preparation of bibliographies and special reports by th students. Credit, 1 each semeste

200. THESIS.—Individual research in the field of nutrition and th preparation of an acceptable thesis reporting results and analysis o such studies. Credit, 1(

COURSES FOR MINOR CREDIT ONLY.

75. ECONOMICS OF THE HOUSEHOLD.—A study of personal and famil standards of living in the modern home, the economic relations of th household, and the use of time, energy and money as a means to influenc the home situation. Credit, 3

83. PROBLEMS IN HOME ECONOMICS.—An application of home ecor omics to special problems. Credit, 3 each semeste

86. CHILD DEVELOPMENT.—A study of the growth and development o the child, the care of children at various ages, treatment in behavio problems, and the influence of environment in shaping personality. Credit, 3

87. ADVANCED CLOTHING PROBLEMS.—A study of advanced clothin problems with special emphasis on economic problems involved. Costum designing and modeling are included which give opportunity for exper mentation in designing. Credit, 3

89. DIET THERAPY.—This course offers a brief outline of the cause symptoms, and general treatment of the various diseases in which th nutritional condition of the patient has significance. The course include the dietetic treatment and control of gastrointestinal disorders, obesity cardio-vascular-renal diseases, anemia, fevers, diabetes, food allergy an the deficiency diseases. Field trips are planned to the dietetic depar ments of nearby hospitals.

3 class hours. Credit, 3

Prerequisites, Home Economics 52; Chemistry 79; Physiology 32.

91. INSTITUTIONAL FOODS AND MANAGEMENT.—This includes a study of the principles of organization, personnel management, the administration of the food department, food costs, operating expenses, and the special function and duties of the dietitian. Laboratory work will be at the College Dining Hall and in various other institutions in the vicinity. It is expected that students will enroll for the work of both semesters. Enrollment limited.
1 class hour. 2 2-hour laboratory periods. Credit, 3.

Horticultural Manufactures.

COURSES FOR MAJOR OR MINOR CREDIT.

101-102. FOOD INDUSTRY PROBLEMS.—A series of problems, exercises and assignments covering a wide variety of subjects. Definite credit assigned to each problem. Credit, 2-6.

161. COMMERCIAL PRACTICES.—Advanced laboratory work in the manufacture of canned meats, marine products, vegetables, soups, pickled products, maple and table syrups, fountain syrups and carbonated beverages. One lecture, two 2-hour laboratory periods. Credit, 3.

162. COMMERCIAL PRACTICES.—Advanced laboratory work and lectures on such manufactured food products as jellies, jams, marmalade, pectin, juices and by-products. A study of chemical preservatives in foods. Food laws. Fermented foods and beverages. Refrigeration, freezing, drying and smoking as applied to food preservation and storage. Inspection of plants. One lecture and two two-hour laboratory periods. Credit, 3.

171. SEMINAR.—Literature assignments, preparation of reports, and roundtable discussions, special lectures. Credit, 1-2.

182. CONFECTIONS AND SPECIAL PRODUCTS.— Candied and glaced fruits, and preserves; candies, sugars and accessory preserving materials.
Two 2-hour laboratory periods. Credit, 2.

191. EXAMINATION OF FOOD PRODUCTS.—Factory and laboratory methods. Grades and quality factors; physical, chemical, microbiological and microscopical methods and interpretation of results. Government and trade standards. Two 2-hour laboratory periods. Credit, 2.

200. THESIS.—Research on some suitable topic relating to the technology of foods. Facilities for nutrition research are provided by well-equipped chemical and small animal laboratories. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

51. FRUIT AND VEGETABLE PRODUCTS.—This course, together with 52, gives the student a general elementary knowledge of the science and practice of food manufacture. Principles and theories of the various methods of food preservation are the basis for classroom exercises. The laboratory work during the first semester deals largely with the preservation of the autumn fruits and vegetables, small fruit products, freezing and dehydration.
1 class hour. 2 2-hour laboratory periods, credit, 3.

52. MISCELLANEOUS PRODUCTS.—This is a continuation of 51. The laboratory work includes pickles and pickle products, maple products, citrus products, fruit syrups, soups, condiments and the canning of meats, poultry, and the spring vegetables.
1 class hour. 2 2-hour laboratory periods, credit, 3.

61. COMMERCIAL PRACTICES.—A survey of commercial practices in the manufacture and preservation of food products. This will involve a study of equipment, factory arrangement, sanitation and government regula-

tions, the operation of types of commercial equipment in quantity production.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Prerequisites Horticultural Manufactures 51 and 52.

62. FOOD PRESERVATION PROBLEMS.—This is a continuation of 61. The class exercises will deal largely with a survey study of the sources of raw materials, commercial methods of manufacture, packing and distribution of the more common foods, also a study of the more important contributions of research. Laboratory work will include the formation of research projects, interpretation of research data. The use of preservatives, the simple analysis of foods and the commercial practices as applied to preservation of such materials as are available: fish, meats, poultry, and spring vegetables.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Prerequisite Horticultural Manufacture 61.

75. FOOD PRESERVATION.—For seniors and graduate students. Not open to students who have credit for Horticultural Manufactures 51, 52, or 81. This is a general course in food preservation and is intended only for those who desire a survey of the field in a condensed form. Two 2-hour laboratory periods, 1 class hour. Credit, 3.

Landscape Architecture.

COURSES FOR MAJOR OR MINOR CREDIT.

175. THEORY OF LANDSCAPE ARCHITECTURE. Credit, 3.
Professor WAUGH.

178. HISTORY OF ARCHITECTURE. Credit, 3.
Professor HARRISON.

181. ADVANCED DESIGN. Credit, 3.
Professor OTTO.

182. RESIDENCE GROUNDS DESIGN. Credit, 3.
Professor HARRISON.

183. CONSTRUCTION AND MAINTENANCE. Credit, 3.
Professor HARRISON.

190. THEORY.—Special studies in the history and theory of art and of landscape architecture. Credit, 3.
The DEPARTMENT.

191. DESIGN.—Individual problems in any or all branches of design, including estates, parks, playgrounds, public grounds, etc. Credit, 3.
The DEPARTMENT.

192. CONSTRUCTION.—Individual problems by arrangement, including engineering, estimating, cost accounting, and methods of construction. Credit, 3.
THE DEPARTMENT.

194. PRACTICE.—Professional field work under supervision, conducted upon going projects as opportunity offers. Credit, 3.
By arrangement.
THE DEPARTMENT.

195. SEMINAR.—Regular meetings for conference. Credit, 1.
Professor WAUGH.

196.—PRESENTATION.—Studies in drafting, pen and crayon, rendering, water coloring, etc. Credit, 3.
Mr. ROBERTSON.

197. ARCHITECTURE.—Problems in architecture. Credit, 3.
Mr. ROBERTSON.

198. CIVIC ART.—Studies and problems in civic art, including city planning, country planning and subdivision, public policies, and admin-

istration in park and forest recreation, and landscape conservation. Credit, 3.
Professor Otto.

200. Thesis. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

51. Mapping and Topography. Credit, 3.
Professor Harrison.

52. Elements of Landscape Architecture.— Engineering details, grades, roads, drainage. Credit, 3.
Professor Harrison.

54. Garden Design.—Elementary principles of structural design as applied to the simpler garden forms. Credit, 3.
Professor Otto.

FOR THE DEGREE OF BACHELOR OF LANDSCAPE ARCHITECTURE.

To receive the degree of Bachelor of Landscape Architecture each candidate will be required:

1. To have received the degree of Bachelor of Science or Bachelor of Arts from a reputable institution.
2. To have completed as a prerequisite 24 semester credits in technical courses in landscape architecture, substantially equivalent to the technical courses now required in the major in landscape architecture at this college.
3. In addition, to have completed in residence at this institution 30 credits in landscape architecture and closely related subjects prescribed by the department. (See Fifth Year Program below.)
4. To have maintained a standing of 70 or better in all courses of the Fifth Year.
5. To be able to speak and write good English.
6. To have received the unanimous approval of the faculty of the department and the usual vote of approval of the faculty of the Graduate School.

FIFTH YEAR PROGRAM.

The regular program of studies for the Fifth Year, subject to minor changes, is as follows:

First Semester.

LANDSCAPE ARCHITECTURE 101.—General Design. Professor Otto.
LANDSCAPE ARCHITECTURE 103.—Ecology and Physiography.
Professor Waugh.
LANDSCAPE ARCHITECTURE 107.—Specifications, Estimates, Costs.
Professor Harrison.
LANDSCAPE ARCHITECTURE 109.—Landscape Sketching (Elective).
Professor Robertson.
ARCHITECTURE 101.—Elementary Problems. Professor Robertson.
ENGLISH. Assigned.

Second Semester.

LANDSCAPE ARCHITECTURE 102.—Landscape Forestry.
Professor Holdsworth.
LANDSCAPE ARCHITECTURE 106.—General Design.
Professor Otto.
LANDSCAPE ARCHITECTURE 112.—Professional Practice.
Professor Waugh.

LANDSCAPE ARCHITECTURE 114.—Architectural Sketching (Elective).
Professor ROBERTSON.

ARCHITECTURE 102.—Structural Problems.
Professor ROBERTSON.

English, Assigned.

Note. Each course in this group is rated at 3 semester credits. Minor deviations from this program may be made at the discretion of the department.

Languages and Literature.

Any of the following courses as described and listed by number in the general College Catalogue may be selected to contribute to the requirements for a minor under any major where offerings in the Department of Languages and Literature are approved for a minor:

ENGLISH.—All courses from No. 50 to No. 83 inclusive.

GERMAN.—All courses from No. 27 to No. 82 inclusive.

FRENCH.—All courses from No. 29 to No. 80 inclusive.

Mathematics.

COURSES FOR MINOR CREDIT ONLY.

55. MATHEMATICS OF FINANCE.—The mathematical principle of simple and compound interest, annuities, depreciation, valuation of bonds, insurance, building and loan associations. The development and application of aids to computation in problems arising from financial transactions.
3 class hours. Credit, 3.
Prerequisite, Mathematics 1. Assistant Professor MILLER.

60. SPHERICAL TRIGONOMETRY AND SOLID ANALYTIC GEOMETRY.—The trigonometry of the sphere with applications to terrestrial and celestial problems. This is followed by a study of higher plane curves and the analytic representation of points, lines and surfaces in space.
3 class hours. Credit, 3
Prerequisite, Math. 30. Associate Professor MOORE.

62. STATISTICS.—The fundamental mathematical principles of statistical analysis. A discussion of averages, measures of dispersion, frequency and probability functions, correlation, random sampling. This course in conjunction with Agricultural Economics 79 should provide the student with a good understanding of the application of statistical method and the interpretation of results.
3 class hours. Credit, 3
Prerequisite, Mathematics 51. Assistant Professor MILLER.

75. HYDRAULICS.— Hydrostatics, which deals with pressure gages pressures on surfaces and immersed and floating bodies, is first considered. Hydrokinetics, which includes flow through orifices and tubes over weirs and dams, through pipes and open channels, is dealt with next. Hydrodynamics, which considers turbines and pumps, will be taken up briefly. Where possible current practical problems in hydraulics such as flood control, hydro-electric power development and erosion control are discussed during the class period.
3 class hours. Credit, 3
Prerequisite, Physics 25, Mathematics 28. Mr. MARSTON.

76. WATER SUPPLY.—This course considers the engineering aspects of public water supply systems and includes the following topics: quantity of water required; sources of supply; rainfall; evaporation and percolation; flow of streams; ground water; quality of water supplies; water

orks construction; intake works; dams; methods of purification; distribution systems.
class hours. Credit, 3.
rerequisite, Mathematics 75 or permission of instructor.
Mr. MARSTON.

91, 92. ADVANCED CALCULUS AND DIFFERENTIAL EQUATIONS.—A course evoted to the topics of the calculus more advanced than those encoun-red in Mathematics 29 and 30 such as series, expansion of functions, nvelopes, partial differentiation, and multiple integrals. This work is llowed by a study of differential equations, a subject which dominates he field of applied mathematics.
class hours. Credit, 3.
rerequisite, Math. 30.
Associate Professor MOORE and Assistant Professor ANDERSON.

Olericulture.

COURSES FOR MAJOR AND MINOR CREDIT.

150. CURRENT LITERATURE.—A review of scientific papers relating to esearch work in Olericulture as affecting various cultural practices both the greenhouse and in the field. Credit, 3.

151. NUTRITION OF VEGETABLE CROPS.—Readings, laboratory and reenhouse work related to problems of soil management and fertiliza-on practices. Credit, 3.

152. CULTURAL PROBLEMS.—A study of fundamental factors such as il moisture, light, humidity and temperature as they influence cultural ractices. Credit, 3.

175. ADVANCED SYSTEMATIC OLERICULTURE.—A critical study of vege-ble types as to nomenclature, identification, and classification. Credit, 3.

181. SEMINAR.—A study of research work related to Olericulture. ach student will be required to present papers on assigned readings. Credit, 1.

200. THESIS.—Research on some suitable topic relating to a specific ase of Olericulture. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

25. GENERAL OLERICULTURE. Credit, 3.
51. PRINCIPLES OF OLERICULTURE. Credit, 3 each semester.
75. SYSTEMATIC OLERICULTURE. Credit, 3.
76. GREENHOUSE CROPS. Credit, 3.
78. COMMERCIAL OLERICULTURE. Credit, 3.

Physical Education.

COURSES FOR MINOR CREDIT ONLY.

MEN.

55. HISTORY AND PURPOSES OF PHYSICAL EDUCATION.—A study of the istory of the development of the various systems of physical education id of the aims and ideals of present-day physical educators. Credit, 2.
Professor GORE.

56. ORGANIZATION AND ADMINISTRATION.—Considers the organization id administration of a department of physical education. Credit, 2.
Professor HICKS.

71, 72. SPECIAL PROBLEMS COURSE IN PHYSICAL EDUCATION.—Presen-tion and discussion of research work in physical education, health edu-tion, and athletics. Credits, 3 each semester.
Professor GORE and The DEPARTMENT.

74. RECREATION ORGANIZATION AND ADMINISTRATION.—A study made of the executive and administrative problems arising out of t conduct of a community-wide recreation program. Credit,

Professor GORE.

77. ANATOMY GENERAL.—A course in structural anatomy, includi bones, ligaments, muscles, circulation, digestion, nervous system and r piration. Credit,

Professor RADCLIFFE.

78. ANATOMY APPLIED.—A course in applied anatomy or kinesiolo aimed to give the anatomical knowledge and application basal to a th ough understanding of the mechanical problems in apparatus, athletic a corrective exercises. Credit,

Professor RADCLIFFE.

Physics.

COURSES FOR MINOR CREDIT ONLY.

51, 52. MAGNETISM, ELECTRICITY, PHOTO-ELECTRICITY, THERMIONI AND APPLICATION.—Course 51 deals mainly with direct currents, Cour 52 with alternating currents, applications of thermionics, and photo-el tricity. These courses are planned to give the student a good groundi in theory and methods of measurement in the subjects indicated, whi are useful in many fields of investigation. Modern methods are stress and instruments of precision are used.

2 class hours. 1 2-hour laboratory period, credit 3 each semest

Professor POWERS.

Prerequisites, Physics 26 for Course 51; Physics 51 for Course 5 Math. 28.

53. OPTICS.—An intermediate course in the theory of light. Work geometrical and physical optics is done. Precision instruments are us in the laboratory.

2 class hours. 1 2-hour laboratory period, credit

Assistant Professor ALDERMAN.

Prerequisites, Physics 26, Math. 28.

54. HEAT AND THERMODYNAMICS.—A study of heat exchanges and e ergy changes due to heat in systems of matter. The subject material a experimental methods are useful in other branches of science.

2 class hours. 1 2-hour laboratory period, credit

Assistant Professor ALDERMAN.

Prerequisites, Physics 25 and 26, Math. 28.

56. MECHANICS.—Development of the fundamental concepts of stati and dynamics with applications to particles and rigid bodies in transl tion and rotation. Credit,

3 class hours (1 laboratory period may be substituted for 1 class hour Prerequisites, Physics 26, Math. 29. Mr. ROSS.

75, 76. ADVANCED EXPERIMENTAL WORK IN SELECTED TOPICS.—The courses are chiefly experimental, and the subject matter is adapted the needs of the individual student. The research viewpoint is emph sized. 3 2-hour laboratory periods, credit 3 each semest

Professor POWERS.

Prerequisites, Physics 25, 26, and 52; or 53 and 54; Math. 28 and 5

85, 86. MODERN PHYSICS.—Typical subjects studied are theories the atom, radiation, quantum theory, spectra, X-ray analysis.

3 class hours. Given at option of instructor. Credit, 3 each semest

Professor POWERS.

Prerequisites, Physics 25, 26, 51-54; or equivalent; Math. 28, 51.

Pomology.

COURSES FOR MAJOR OR MINOR CREDIT ONLY.

101. EXPERIMENTAL METHODS.—A critical study of the methods of research that have been used or may be helpful in pomological work. The following topics will be considered from the point of view of the investigator in pomology:—

1. Statistical methods.
2. Measures of growth and yield.
3. The conduct of plot experiments.
4. Methods of soil study in their relation to pomological research.
5. Chemical methods of pomological research.
6. Methods of physiology applicable to fruit plants.

Credit, 10.

102. POMOLOGICAL RESEARCH.—A critical survey of past and current research work in pomology. Tri-weekly meetings for reports and discussions will be held. The following topics will be taken up:—

1. Orchard soil management.
2. Soil fertility and fertilizers.
3. Physiology of pruning fruit plants.
4. Fruit bud differentiation.
5. Sterility and fertility.
6. Genetics of fruit plants.
7. Climatology and winter injury.
8. Special problems in propagation and nursery management.
9. Spraying machinery and equipment.
10. Special practices.

Credit, 10.

103. ADVANCED LABORATORY WORK.—Each student will be required to become familiar with the research work of the department and to have a share in it. So far as this has value as graduate work, he will receive credit. Credit, 5.

104. HISTORY OF POMOLOGY.—The men, institutions, and other influences that have contributed to the development of the science and art of pomology. Credit, 2.

106. ADVANCED SYSTEMATIC POMOLOGY.—The principles of systematic pomology, including a study of nut and subtropical fruits not usually dealt with in undergraduate courses. Opportunity is also offered for study of leaf and general tree characters of nursery and orchard trees and the relationship of varieties as indicated by these characters as well as those of the fruit. Credit, 5.

200. THESIS.—Each student will be required to carry out an original investigation of an assigned problem. In planning, executing and interpreting the data of this problem he must show marked ability. The results are embodied in a thesis to be passed upon by the Department and the Graduate Staff. Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY.

POMOLOGY 26, SMALL FRUITS.—A study of the growing of small fruits, including raspberries, blackberries, strawberries, currants, blueberries, and grapes, dealing with such questions as varieties, selecting a site for the plantation, soils, fertilizers, pruning, harvesting, marketing, etc. 2 class hours. 1 2-hour laboratory period, credit, 3.

POMOLOGY 53. GENERAL POMOLOGY.—A study of the most improved practices in fruit production, including such questions as the selection of orchard sites and soils, laying out and setting the orchard, the structure

and growth of fruit plants; the bearing habits, pruning and training of fruits; fertilizers, pollination, winter injury, etc.
2 class hours. 1 2-hour laboratory period, credit, 3.

POMOLOGY 56. SPRAYING.—(a) Spraying materials, their composition, manufacture, and preparation for use; the desirable and objectional qualities of each material; formulas used, costs, tests of purity. (b) Spraying machinery, including all the principal types of pumps, nozzles, hose and vehicles; their structure and care. (c) Orchard methods in the application of the various materials used, with the important considerations for spraying each fruit and for combating each orchard pest. This course is designed especially to familiarize the student with the practical details of actual spraying work in the orchard.
1 class hour. 2 2-hour laboratory periods, credit, 3.

POMOLOGY 75. SYSTEMATIC POMOLOGY (1938-39).—A study of the more important kinds and varieties of fruits grown in the United States, their relationships and nomenclature. Particular emphasis is placed on the identification, classification and value of varieties including a study of the characters of the plant as well as the fruit. Given in alternate 1939-40 years.
1 class hour. 3 2-hour laboratory periods, credit, 4.

POMOLOGY 77. COMMERCIAL POMOLOGY (1937-38).—The picking, handling, storing, and marketing of fruits, including a discussion of storage houses, fruit packages, and methods of refrigeration, grading and packing. This course also considers the leading American and foreign centers of fruit production as they affect our own fruit industry through competition here and abroad. Given in alternate years.
2 class hours. 1 2-hour laboratory period, credit, 3.

POMOLOGY 81. ADVANCED POMOLOGY.—A consideration of the scientific principles governing the growth and behavior of fruit-bearing plants. Special attention is given to a critical survey of the more important research work in the field of Pomology.
2 class hours. 1 2-hour laboratory period, credit, 3.
Prerequisite, Pomology 53.

POMOLOGY 82. ADVANCED POMOLOGY.—A continuation of Course 81.
2 class hours. 1 2-hour laboratory period, credit, 3.
Prerequisite, Pomology 81.

POMOLOGY 83. SEMINAR.—Advanced study of problems relating to the business of fruit growing. Each student is assigned a major problem in lines of work in which he is particularly interested. He pursues his studies both by reading and research, and the materials obtained will be worked into theses, which are presented to the seminar for discussion. No lectures are given, but seminar meetings are held for one period each week.
1 class hour. Credit, 1 each semester.

THE DEPARTMENT.

Poultry Science.

COURSES FOR MAJOR OR MINOR CREDIT.

101. SCIENCE OF POULTRY HUSBANDRY.—A review of the entire field of poultry literature, including books, bulletins, journals, and other technical publications to furnish a comprehensive background of the present status of knowledge in poultry science. Written reports will be required. Credit, 3.

102. POULTRY RESEARCH PROBLEMS.—A critical review of research, experimentation, and demonstration that has been carried out by workers at the various stations in this and other countries. A study of poultry

problems in foreign countries together with the outstanding needs in the United States with a view of discovering the needs for fundamental research. Credit, 3.

103, 104. ADVANCED GENETICS.—A lecture course offered during both semesters dealing with the experimental study of genetics in relation to both plant and animal breeding. The course is open to qualified graduate students in any line of study. Credit, 3.

105. GENETICS AND EVOLUTION.—A series of lectures dealing with the genetics of evolution. The course is designed to follow Course 103-104 and to stress the relation of evolution to genetics. The course is open to all qualified graduate students. Credit, 3.

106. RESEARCH IN BREEDING.—Students may carry on definite experiments in poultry breeding. All research work will be confined to the field of pure and applied genetics. Problems concerned with both physical physiological characters may be studied. Credit, 5.

107. INTERPRETATION OF BREEDING DATA.—A complete analysis of available experimental data on various phases of poultry breeding is undertaken by the student. The student is required to make his own interpretations and to report the results of his analysis. Credit, 3.

108. INCUBATION AND EMBRYOLOGY.—A number of problems of a practical, scientific, and mechanical nature relating to incubation are considered. The work in embryology is of an advanced nature, dealing with its relation to morphogenesis and heredity, and presupposes an elementary knowledge of the embryology of the chick. Credit, 3.

109. BROODING.—Studies will be made upon the relation between viability and rate of growth and some of the following: type of brooder, number of chicks in brood, temperature, ventilation, humidity, sanitation, exercise, and weather conditions; or a comparison of natural methods with artificial methods of rearing chicks. Credit, 3.

111. FEEDING AND NUTRITION.—A study of the relation of various feeds to the physiology of the fowl. Special attention is given to the nutritive requirements and the effects of various nutrients on growth, egg production, hatchability, character of plumage, and condition of flesh. Complete rations as well as methods of feeding are fully considered. Credit, 5.

200. THESIS.—Research work may be carried out in the following lines: breeding, nutrition, brooding and incubation, and embryology. Originality and thoroughness are particularly emphasized. Credit, 10-30.

COURSES OFFERED FOR MINOR CREDIT ONLY.

81, 82. POULTRY PROBLEMS.—Open to seniors and graduate students. The course consists of problems chosen by the students under the guidance of the department. Credit, 3.

Veterinary Science.

COURSES FOR MINOR CREDIT ONLY.

75. COMPARATIVE VETERINARY ANATOMY.—The structures of the horse, cow, sheep, and pig are studied.
3 lectures a week. Credit, 3.

76. GENERAL VETERINARY PATHOLOGY.—The principles of pathology and their application as related to diseases of domesticated animals are considered.
3 lectures a week Credit, 3.

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1938-39

Amherst, Massachusetts

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FOREWORD

This bulletin presents the Catalogue of the College for the sessions of 1938-39 and announcements concerning courses, admission, etc., for the sessions of 1939-40.

The College reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue.

The College Catalogue for the sessions of 1938-39 is part of the Seventy-sixth Annual Report of Massachusetts State College and as such is part II of Public Document 31. (Sec. 8, Chapter 75, of the General Laws of Massachusetts.)

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CALENDAR

1939

Jan. 23-Feb. 1, Monday-Wednesday	Final Examinations
Feb 1, Wednesday, 5:00 P.M.	First Semester ends
Feb. 6, Monday, 8:00 A.M.	Second Semester begins
Feb. 22, Wednesday	Holiday, Washington's Birthday
Apr. 1-10, Saturday, 12 M.-Monday, 8:00 A.M.	Easter Recess
Apr. 19, Wednesday	Patriots' Day
May 30, Tuesday	Memorial Day
May 31-June 9, Wednesday-Friday	Final Examinations
June 9, Friday	Second Semester closes
June 2-5, Friday-Monday	Stockbridge Commencement
June 9-12, Friday-Monday	Commencement
June 15-17, Thursday-Saturday	Entrance Examinations
July 3-August 12	Summer School
September 13-15, Wednesday-Friday	Entrance Examinations
September 18, Monday	First Semester begins for Freshmen
September 20, Wednesday, 2:00 P.M.	Opening Convocation
September 21, Thursday, 8:00 A.M.	All class schedules start
October 2, Monday	First Semester begins for Stockbridge School Freshmen
October 3, Tuesday	First Semester begins for Stockbridge School Seniors
October 12, Thursday	Holiday, Columbus Day
November 11, Saturday	Holiday, Armistice Day
November 29-December 4, Wed. 12 M-Monday, 8:00 A.M.	Thanksgiving Recess
December 16-January 2, Sat. 12 M.-Tuesday, 8:00 A.M.	Christmas Recess

1940

January 22-31, Monday-Wednesday	Final Examinations
January 31, Wednesday, 5:00 P.M.	First Semester ends
February 5, Monday, 8:00 A.M.	Second Semester begins
February 22, Thursday	Holiday, Washington's Birthday
March 23-April 1, Sat. 12 M.-Monday, 8:00 A.M.	Easter Vacation
April 19, Friday	Holiday, Patriots' Day
May 30, Thursday	Holiday, Memorial Day
May 29-June 7, Wed.-Fri.	Final Examinations
June 7, Friday	Second Semester Closes
May 31-June 3, Friday-Monday	Stockbridge Commencement
June 7-10, Friday-Monday	Commencement
June 13-15, Thursday-Saturday	Entrance Examinations

BOARD OF TRUSTEES

Term expires 1939

DAVID H. BUTTRICK of Arlington
DAVID J. MALCOLM of Charlemont

1940

JOHN F. GANNON of Pittsfield
DAVIS R. DEWEY of Cambridge

1941

JOSEPH W. BARTLETT of Boston
PHILIP F. WHITMORE of Sunderland

1942

JOHN CHANDLER of Sterling Junction
FREDERICK D. GRIGGS of Springfield

1943

NATHANIEL I. BOWDITCH of Framingham
WILLIAM C. MONAHAN of Framingham

1944

MRS. ELIZABETH L. MCNAMARA of Cambridge
JAMES T. CASSIDY of Dorchester

1945

MRS. KATHERINE G. CANAVAN of Amherst
JOSEPH B. ELY of Westfield

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His Excellency CHARLES F. HURLEY, *Governor of the Commonwealth*
HUGH P. BAKER, *President of the College*
JAMES G. REARDON, *Commissioner of Education*
WILLIAM CASEY, *Commissioner of Agriculture*

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† On leave of absence.

The Professional Staff of the College **

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** Key to abbreviations { Instruction staff — Instr. / Experiment Station — Exp. / Extension Service — Ext. }

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HAROLD S. TIFFANY, A.B., . . . Waltham Field Station—Walthan
Assistant Research Professor of Nursery Culture. (Exp.)

BERTRAM TOMLINSON . . . . . Barnstabl
Agricultural Agent, Barnstable County. (Ext.)

WILLIAM E. TOMLINSON, JR.. M.S., . Waltham Field Station—Waltham
Laboratory Assistant in Entomology. (Exp.)
RAY E. TORREY, Ph.D., ... Clark Hall—Inwood
Professor of Botany. (Instr.)
EMIL J. TRAMPOSCH, B.S., . . . Wilder Hall—22 Phillips St.
Instructor in Horticulture. (Instr.)
JAY R TRAVER, Ph.D., . . Fernald Hall—813 North Pleasant St.
Instructor in Zoölogy. (Instr.)
REUBEN E. TRIPPENSEE, Ph.D., . . . French Hall—9 Chestnut St.
Professor of Wildlife Management. (Instr.)
FREDERICK S. TROY, M.A., ... The Chapel—155 Amity St.
Assistant Professor of English. (Instr.)
WALTON E. TRURAN . . Goessmann Laboratory—North Amherst
Adjunct Assistant Professor of Plant Pathology.
ALDEN P. TUTTLE, M.S., ... French Hall—Birch Lawn
Assistant Professor of Vegetable Gardening. (Instr.)
RALPH A. VAN METER, Ph.D. . . . French Hall—North Amherst
Professor of Pomology; Head of Department; Head of Division of
Horticulture. (Instr.)
HENRY VAN ROEKEL, D.V.M., Ph.D., . Paige Laboratory—47 Hallock St.
Chief of Laboratory, Poultry Disease Control. (Exp.)
H. LELAND VARLEY, M.A., . . The Chapel—44 North Prospect St.
Instructor in English. (Instr.)
ROLAND H. VERBECK, B.S., . . . South College—62 Orchard St.
Director of Short Courses. (Instr.)
WILLIAM G. VINAL, Ph.D., . . . Fernald Hall—10 Taylor St.
Professor of Nature Education. (Instr.)
JOHN H. VONDELL . . . . Stockbridge Hall—80 Fearing St.
Instructor in Poultry Husbandry and Foreman Poultry Plant. (Instr.)
MICHAEL J. WALDRON, Jr., . . . Power Plant—76 McClellan St.
Engineer.
HELEN WALKER, B.S., ... Hathorne
Assistant Club Agent, Essex County. (Ext.)
WILLIAM R. WALKER, B.S., . . 1499 Memorial Ave., West Springfield
Club Agent, Hampden County. (Ext.)
ELLEN WAREHAM, B.S., ... 19 Everett St., Concord
Associate Home Demonstration Agent, Middlesex County. (Ext.)
HERBERT E. WARFEL, M.S., . . . Fernald Hall—North Amherst
Assistant Professor of Zoölogy. (Instr.)
RICHARD WARREN, M.S., ... 19 Everett St., Concord
Assistant Agricultural Agent, Middlesex County. (Ext.)
FRANK A. WAUGH, D.Sc., L.H.D., . Wilder Hall—130 Stockbridge Road
Professor of Landscape Architecture and Head of Department.
(Instr.)
WINTHROP S. WELLES, M.Ed., . Stockbridge Hall—135 Lincoln Avenue
Professor of Education and Head of Department. (Instr.)
GEORGE W. WESTCOTT, M.S., . Stockbridge Hall—22 Mount Pleasant
Extension Economist.[1] (Ext.)
BESSIE M. WEYMOUTH . . Goodell Library—79 Butterfield Terrace
Cataloguer.
WARREN D. WHITCOMB, B.S., . . Waltham Field Station—Waltham
Research Professor of Entomology. (Exp.)
MRS. ALICE G. WHITE, B.S., ... 106 Main St., Brockton
Assistant Club Agent, Plymouth County. (Ext.)
HAROLD E. WHITE, M.S., . . . Waltham Field Station—Waltham
Assistant Research Professor of Floriculture. (Exp.)
J. PAUL WILLIAMS, Ph.D. . . . Memorial Hall—Pelham
Director of Religious Education. (Instr.)
HAROLD A. WILSON . . . . Waltham Field Station—Waltham
Foreman, Waltham Field Station. (Exp.)

SYLVIA B. WILSON, B.S., ... 15 Gothic St., Northampton
Assistant Club Agent, Hampshire County.

ELEANOR B. WINTERS, B.S., ... 19 Everett St., Concord
Home Demonstration Agent, Middlesex County. (Ext.)

BASIL B. WOOD, A.B., ... Goodell Library—273 Amity St.
Librarian.

GILBERT L. WOODSIDE, Ph.D., . . . Fernald Hall—98 Fearing St.
Assistant Professor of Biology. (Instr.)

HAROLD O. WOODWARD, B.S., ... Segreganset
Associate Agricultural Agent, Bristol County. (Ext.)

EDWIN R. WYETH, B.A.S., ... Segreganset
Club Agent, Bristol County. (Ext.)

HRANT M. YEGIAN, B.S., ... Stockbridge Hall—34 Amity St.
Research Assistant in Agronomy. (Exp.)

ROBERT E. YOUNG, M.S., . . . Waltham Field Station—Waltham
Assistant Research Professor of Vegetable Gardening. (Exp.)

*JOHN M. ZAK, M.S., . . . Stockbridge Hall—306 Lincoln Avenue
Instructor in Agronomy. (Instr.)

* Temporary
† On leave of absence
[1] Ranks as Professor
[2] Ranks as Assistant Professor

Information Concerning the College

HISTORICAL SKETCH.

One of the outstanding achievements of the middle of the nineteenth century was the remarkable development in the field of science. This, in turn, brought about great changes in industry, transportation and agriculture and stimulated the desire for new information and further training. People were enthusiastic about the possibilities of the future. It is not surprising, therefore, that scientific courses gradually found their way into the academies and colleges. This was not without opposition from the friends of the old classical training, however. In many instances institutions founded along literary and philosophical lines did not favor the introduction of courses based on the needs of students desiring to perfect themselves in the technical principles and practices of the arts and industry. Nevertheless the demand for such courses increased It was evident that the old order of education was changing but at the time the new was not apparent. It was under such conditions that Massachusetts State College had its birth.

The Morrill Act.

This demand for technical education finally crystallized into a bill before Congress known as the Morrill Act of 1862 endowing colleges for this purposes in every state of the Union. The original bill was framed by Senator Justin L. Morrill of Vermont and its final enactment obtained under his leadership. The bill provided in each state for "the endowment for and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanics arts in such manner as the legislatures of the states may respectively prescribe in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Massachusetts accepted the provisions of the Morrill Act in 1863 by founding a new college at Amherst to be known as "Massachusetts Agricultural College" and Chapter 75 of the General Laws of the Commonwealth States that "the leading object of the College shall be to teach subjects relating to agriculture and the mechanics arts so as to promote liberal and practical education. Its curriculum may include other scientific and classical studies and shall include military tactics."

Founding and Early Growth of the College.

The Trustees of Massachusetts Agricultural College were incorporated in 1863 and officers were appointed in that year. It was not until October 2, 1867, however, that the institution at Amherst was formally opened to students. At that time there were four teachers on the faculty and four wooden buildings on the campus. The number of students steadily increased during the first term and by December, 1867, forty-seven had been admitted. From this modest beginning the College has grown steadily and its influence has been felt in many parts of the world. On April 15, 1931, the name of the institution was changed by legislative enactment to Massachusetts State College.

Scope of the Institution.

In a sense, experimental work is as old as the institution, for even during its earliest years some very important investigations were carried on by the instructors. Research work was established as a separate unit, however, in 1882, when the State provided for the establishment of an

agricultural experiment station here. In 1887 another experimental unit, the Hatch Experiment Station, was provided by Federal appropriation. These two stations were combined in 1895 and have since been known as the Massachusetts Agricultural Experiment Station.

State law also provides for the maintenance at this College of a Control Service to regulate the sale of certain agricultural products for the protection of purchasers and also to eliminate certain diseases of poultry.

The Extension Service of the College was established in 1912 and was first supported by grants of Federal Funds in 1914. This division of the College undertakes the large responsibility of teaching adults and boys and girls throughout the State, who cannot come to the College for instruction, better methods in agriculture and home-making.

Resident Instruction.

Opportunities for resident instruction have expanded greatly since the founding of the College in 1863. In addition to the four-year course leading to the Bachelor of Science degree, there are now offered such short courses as the Winter School, Summer School, and the two-year course in practical agriculture known as the Stockbridge School. The Graduate School offers opportunity for study for advanced degrees. The curriculum of the four-year course includes comprehensive courses in Agriculture, Home Economics, Horticulture, Humanities, Landscape Architecture, Physical and Biological Sciences, Physical Education and Social Sciences. The aim is to give to each student as high a degree of proficiency in some particular branch of learning as is possible without sacrificing the breadth of knowledge and training which should characterize the well-rounded college course.

THE COLLEGE CAMPUS.

Hand in hand with this steady growth of the College, there has come a marked expansion in physical equipment. The original farm of 1867, with its run-down fields and degenerated apple orchards cut up here and there by old Virginia rail fences and hedge rows has metamorphosed into one of the most attractive college campuses in New England. A brief statement of land, buildings and equipment will show to what extent the original four wooden buildings have been out-grown.

Location and Lands.

The State College is located in Amherst, a town of about six thousand people, overlooking one of the most picturesque sections of the Connecticut Valley. From the standpoint of teaching material in the field of science and agriculture, the location is ideal. Amherst is eighty-eight miles from Boston and may be reached by the Central Vermont Railroad, or by bus connections from Northampton, Holyoke, Greenfield, and Springfield. The campus consists of a tract of approximately seven hundred acres, lying about a mile north of the village center. In addition the College owns another area of seven hundred and fifty-five acres located about six miles north of the campus on Mount Toby. This is used as a demonstration forest.

The College also operates a horticultural field station at Waltham and a cranberry field station at Wareham.

Buildings and Equipment.

The campus is laid out in the form of an oval attractively set off by the college pond in the center. Around this oval are grouped the main buildings of the College. In the following list the buildings are presented in order about this oval.

South College. — Here are located the administrative offices, including the offices of the President, Dean, Treasurer, Secretary, the Extension

ervice, Short Courses, Placement Service and Women's Adviser. The epartment of Economics also has offices here. Erected 1885.

North College. — Primarily a freshman dormitory accommodating out seventy-five students. On the first floor is located the College Store id Barber Shop. Erected in 1868.

Flint Laboratory. — The work in Dairy Industry is carried on here. he building is well equipped with modern machinery for the production market milk, ice-cream, butter and cheese. This building was erected 1911 and was named in honor of Charles L. Flint, fourth president of ie college. On the second floor is located the food laboratory of the epartment of Home Economics.

Stockbridge Hall. — Here are located the departments of Agricultural conomics and Farm Management, Agronomy, Animal Husbandry, Engineering, Poultry Husbandry, and Education. In addition to the lecture ooms and offices are laboratories for soil fertility, field crops, poultry, and drafting room for engineering. The clothing and house furnishing labratories for the Home Economics Department are also located here. In ie rear of the building are the green house and head house used by the epartment of Agronomy for work with crops and soils. A special referice library for the Division of Agriculture is on the second floor. Bowker uditorium, the largest auditorium on the campus, is also in this building. is named in honor of William H. Bowker, a member of the first graduting class, later a Trustee of the College, and one of the pioneers in the rtilizer industry. Stockbridge Hall was erected in 1914 and named in onor of Levi Stockbridge, a former president and professor of Agriculire in the college.

Horticultural Manufactures Laboratory. — Erected in 1929. Both reearch and instruction work in food preservation are carried on here. The boratories are well equipped with modern apparatus used in this rapidly eveloping field.

Grinnell Arena. — Erected in 1910 primarily for livestock judging. An attoir was constructed in 1930 as an addition to the original building. amed in honor of James S. Grinnell, for twenty-two years a trustee of ie College.

Farley 4-H Building. — This building was constructed in 1933 as an ssembly hall and general headquarters for 4-H Club activities upon the ampus. The cost of the building was met by gifts from club members roughout the state.

Engineering Laboratory. — Included in this laboratory for students Engineering are a carpenter shop, general repair shop, and a laboory for farm machinery and motors. The building was erected in 1916.

Draper Hall. — This is the college dining hall. Service is cafeteria style nd there are seating accommodations for about four hundred and fifty t one time. There is a small banquet room on the second floor and several ormitory rooms. Erected in 1903 with an addition in 1912, and named in onor of James Draper, for twenty years a Trustee of the College.

Goesmann Laboratory. — This is a modern chemical laboratory. The uilding is approximately two hundred by eighty feet and contains eight rge laboratory rooms, an auditorium, a chemical library, and lecture ooms. The east wing of the third floor is occupied by the research proessors of Chemistry of the Experiment Station. Goessmann Laboratory as erected in 1924 and named in honor of Charles A. Goessmann, the rst professor of Chemistry at the College.

West Experiment Station. — The state control work is centralized here. 'ertilizers, seeds, feeds and dairy glassware are analyzed or inspected in ccordance with the state law, to determine whether or not they meet heir guarantee. Erected in 1886.

East Experiment Station. — The office of the Director of the Experiient Station and other administrative offices of the Experiment Station re located in this building.

Abigail Adams House. — This is a modern girls' dormitory accommo dating about one hundred students. It was erected in 1919 and named fo Abigail Adams, a staunch believer in farm life, the wife of John Adam second President of the United States. In the rear of the building is recreation field for women students.

The Homestead. — Girls majoring in Home Economics receive thei Home Management practice in the Homestead. It is a remodelled coloni farmhouse equipped with all the modern conveniences of the home.

Thatcher Hall. — This is a commodious dormitory for freshman me students, constructed in 1935. It contains library, recreation rooms an facilities for 150 students. It is named in honor of the late Roscoe W Thatcher, tenth President of the College.

Marshall Laboratory. — This building, erected in 1915, is especially d signed to carry on work in Physiology and in Bacteriology as it relates t soil, industry, dairying, foods and public health. There are four cla laboratories, several private laboratory rooms and offices and a lectu room. In addition there are incubator rooms, sterilizing rooms, hoo rooms, washing rooms, inoculating rooms, weighing rooms, an anim room, a photographic and dark room, and a sub-basement refrigerat room. There is also a well-equipped library containing books and curre periodicals useful in the conduct of bacteriological and physiologic study. The building is named in honor of the late Dr. Charles E. Marshal head of the Department of Microbiology from 1912 to 1927.

Infirmary. — The infirmary is composed of two small cottages and large ward building all located on the hillside north-east of Marsha Laboratory. The facilities are specially designed for the care of sick an injured students. Two trained nurses are on duty at all times.

Physics Building. — This is a wooden building erected in 1867. It co tains a well-equipped laboratory for work in Physics and also one lectu room.

Wilder Hall. — Here are located the departments of Landscape Arch tecture and Horticulture. The building is chiefly devoted to classroom drafting rooms, and offices. It was erected in 1905 and named in hon of Marshall P. Wilder, a pioneer in the movement for agricultural educ tion in Massachusetts and one of the first Trustees of the College.

Fisher Laboratory. — This is a well planned and equipped fruit packi and storage house. It includes six refrigerator rooms, four storage roo not refrigerated, one large laboratory room, one class room, besides amp storage space for fruit packages and equipment. The equipment for t building itself includes four types of apple sizers, packing tables and b and barrel presses of various types, besides all kinds of smaller equipme necessary for thoroughly modern work in grading and packing fruit. Th building is used by the Pomology Department and was named in honor Jabez Fisher, one of the foremost early horticulturists of the Stat Erected 1910.

French Hall. — French Hall houses the departments of Pomolog Floriculture, Forestry and Vegetable Gardening. Just to the rear of t building is the new Durfee range of greenhouses. One house is mai tained as a conservatory and contains a collection of plants used p marily for decorative purposes. Two houses are devoted to greenhou vegetables. The old Durfee range located just to the north of French H is used chiefly for the growing and maintenance of a collection of co servatory plants. There are also many of economic value such as t bamboo, camphor tree, guava, palm, etc. French Hall was erected in t sections; the first in 1908, the second in 1913. It was named in honor Henry F. French, the first President of the College.

Clark Hall. — Here are located the offices, lecture rooms and labor tories of the Department of Botany. In addition to the main buildin there is a greenhouse used for research and laboratory purposes. T herbarium contains about 20,000 sheets of seed plants and ferns, 1,2

sheets of liverworts and mosses and a collection of 25,000 specimens of fungi. Erected in 1906 and named in honor of William S. Clark, President of the College 1867-1879.

Fernald Hall. — This building, erected in 1909, was named in honor of Professor Charles H. Fernald, who served the College for twenty-four years, built up a strong department in Zoölogy, created the department of Entomology, and acted as Director of the Graduate School. Fernald Hall houses the Departments of Entomology and Zoölogy, and Geology and Mineralogy. In addition to laboratories, lecture rooms, and officers, there is a Geological Museum, a Zoölogical Museum and a collection of more than 160,000 insects. Material in these collections is available for study and for exhibition purposes.

Mathematics Building. — This building contains classrooms for instruction in Mathematics and Surveying. There is also a well equipped drafting room and a small one devoted to blue-printing.

Paige Laboratory. — The Work in Veterinary Science is located in this building. In addition to the class, lecture, and laboratory rooms, there are the laboratories for research work on animal diseases and Control Service in Poultry Disease Elimination. The museum contains a growing number of anatomical and pathological specimens, most of which are used for teaching purposes. In the rear of the building are the stables for housing both laboratory and larger animals under isolation conditions for dissection, post mortem examinations and for incineration purposes. Paige Laboratory was erected in 1898 and named for James B. Paige, Professor of Veterinary Science from 1891 to 1922.

Physical Education Building. — This building, dedicated at Commencement in 1931, offers splendid modern facilities for Physical Education, including a swimming pool 75 by 30 feet, an exercise hall 150 by 180 feet, locker rooms, baths, and other modern facilities. Of the total cost of $287,000, alumni and friends of the College contributed $115,000; the remainder was appropriated by the State Legislature.

Alumni Field.—This tract of land was transformed into an Athletic Field, containing a baseball diamond, football field, and cinder track, by the alumni and friends of the college. Completed 1915, extended in 1935.

Drill Hall. — This building houses the Department of Military Science and the Department of Physical Education for Women. It contains armory, offices and classrooms for the former and locker and dressing rooms and large exercise hall for the latter.

Women's Athletic Field. — This field was constructed as a W.P.A. project and completed in 1936. It affords excellent outdoor facilities for athletics for women students and is conveniently located just west of the indoor headquarters.

Memorial Hall. — The social center of student life is Memorial Hall. It was erected by the alumni, students, faculty and friends of the College in memory of those men of this College who died in the World War. In the basement are bowling alleys, pool tables, and game rooms. On the main floor are eight offices for the leaders of various student activities, a large reading room and lounge and a beautiful Memorial Room in which is a tablet bearing the names of the sons of the college who gave their lives in the Great War. On the second floor is an auditorium seating 350 persons. This room is also used for college dances. Memorial Hall was erected in 1921.

Old Chapel. — This building was reconstructed recently under the P.W.A. to provide classrooms, offices and a small auditorium for the use of the Division of Liberal Arts. The building formerly served as the College Library and at one time as both library and chapel. It is a fine granite structure erected in 1885.

Goodell Library. — This fine new building, completed in 1935, houses the College Library. This library contains one of the best collections in agriculture and related sciences in the country, with especial strength in

entomology, botany, chemistry, horticulture, landscape architecture, sc science, and animal husbandry, but with considerable collections, also literature, history, economics, and sociology. There are more than 100,0(bound books, and 50,000 classified pamphlets giving most recent inform tion. The periodical file contains more than 550 current magazines, bo scientific and popular, and a careful selection of newspapers, togeth with many periodical publications of learned societies. The Library unusually rich in files of journals and proceedings of Experiment Statio and learned societies. The building is open on week days from 8 A.M. 10 P.M. and from 1.30 to 4.30 and 7 to 9 P.M. on Sundays during semeste and with somewhat shorter hours during vacations and Summer Scho

The building is named in memory of Henry Hill Goodell, President the College from 1886 to 1904 and College Librarian from 1886 to 189

Power Plant. — Heat and light are supplied to all the buildings on th campus from a central power plant. This was erected in 1902 and ha been subsequently remodeled.

Farm Buildings, Land and Equipment.

College Farm and Barns. — The College Farm consists of 240 acres l cated just west of South College. Most of it is suitable for cultivation an is operated in regular rotation. Much of the farm as it now stands ha been made productive by tile draining and clearing the land of brush an stumps. The principal crops raised are those which can be utilized by th livestock. For instructional work the farm is available for study in fiel crops, planning of crop rotation, practical field operation of farm machir ery and tractors and farm management. The livestock of the farm co sists of about 175 head of registered cattle which are excellent represent tives of the Ayrshire, Guernsey, Holstein, Jersey, Milking Shorthorn and Hereford breeds, a considerable number of registered Chester Whit swine, a flock of about 100 Shropshire and Southdown sheep and 2 Percheron horses. These animals are used chiefly for demonstration and instructional work in feeding and herd management and in the teac ing of correct types by much practice in judging. The farm buildings ar model structures for their various purposes. They were erected in 190 and subsequently. The dairy barns contain efficient and modern equi ment for their respective purposes. The sheep barns and piggery ar located several hundred yards from the dairy barns.

Cavalry Stable. — This stable has a capacity for the sixty horses whic are used by the R. O. T. C. Cavalry Unit. Erected in 1925.

Poultry Plant. — The College Poultry Plant consists of about eigh acres of land and the necessary buildings that go to make up a moder college poultry laboratory. This land and an equal area on the Colleg Farm permit a three-year rotation for growing stock. The plant wi accommodate 2,000 laying birds and has growing facilities for about 7,00 chicks. The incubator capacity of the plant is approximately 12,000 egg at one time. Located about one-half mile east of the College, on Eas Pleasant Street, is the experimental poultry farm which accommodate about 1,200 adult birds and has hatching facilities for about 6,000 eggs Here experiments on breeding poultry for egg production and disease con trol are carried on under strict quarantine.

Nutrition Laboratory. — This building was formerly the Hatch Bar used for experimental work in the feeding of livestock, and in it man valuable discoveries were made. Progress, however, had reached the stag where, because of the influence of a more artificial environment and a les natural food supply, it became necessary to intensify the former feedin programs. To meet this requirement this building has been remodeled fo the accommodation of the small animals necessary for investigationa work in this field. This structure, in its modernized form, provides goo facilities for investigation in the field of nutrition, both human an animal.

Experiment Station Barns. — These buildings contain the equipment nd animals used in connection with the work of the Experiment Station.

Orchards and Vineyards. — The college orchard contains about 20 arieties of peaches, 25 of plums, 20 of pears, and 100 of apples. Common arieties of grapes are grown in the vineyard and with the various pproved trellis systems. These orchards are used for teaching material n Pomology.

Vegetable Gardens. — Here are grown the class materials used by the egetable Gardening Department.

Mt. Toby Demonstration Forest. — This is an area of approximately 50 acres located on Mt. Toby. It contains the various types of forest rowth found throughout the State. It serves as a field laboratory in Forstry and Wild Life Management. Students have the privilege of working ut problems in silviculture, forest mensuration and management. Improvement cuttings, cutting for utilization and forest planning are conucted here also.

COURSES OF INSTRUCTION.

Courses Leading to Degrees.

Four-Year Course. — Each undergraduate is required to enroll in one f the six four-year Divisional Majors and may complete curricula leading o either the Bachelor of Science (B.S.) or the Bachelor of Arts (A.B.) egree.

The degree of Bachelor of Science is conferred upon those candidates ho complete the prescribed courses of the first two years in the following ivisions: Agriculture, Horticulture, Home Economics, Physical and Biogical Sciences, Physical Education (for men), as indicated on page 44 nd the specialization requirements of the junior and senior years as utlined on page 45; or the General Engineering curriculum. This deree will also be granted to students who complete the specialization equirements in departments administered under the Libral Arts Division f the candidate elects to receive it or fails to supplement his departmental equirements with eighteen credits from the departments of History, anguages and Literature, Philosophy and Political Science.

The degree of Bachelor of Arts is conferred upon those candidates who ajor in the Division of Liberal Arts and who complete the requirements f that Division for the freshman and sophomore years as indicated on age 44. During their junior and senior years they may either fulfill the epartmental requirements for specialization in History or Languages nd Literature; or fulfill the departmental requirements for specialization in Economics, Education, Psychology, or Sociology and supplement hese with eighteen credits from the following group: History, Lanuages and Literature, Philosophy, Political Science, Music and Art.

Special arrangement is made for some graduates of county agricultural chools and of agricultural departments of certain high schools to receive he degree of Bachelor of Vocational Agriculture for four years of colege work.

Five-Year Course in Landscape Architecture. — A five-year course is ffered in Landscape Architecture leading to the degree of Bachelor of Landscape Architecture.

Graduate School. — The degrees of Master of Science, Master of Landcape Architecture and Doctor of Philosophy may be granted upon the ompletion of satisfactory study, research and a thesis.

Summer School. — Both graduate and undergraduate courses are offered in the six weeks' summer school and credits earned may apply oward the Bachelor's degree or advanced degrees.

Non-Degree Courses.

Several short courses in agriculture are offered which do not lead to a degree. These are for the benefit of those who are not prepared to take the degree course or who desire only a practical training in modern agriculture methods.

Stockbridge School of Agriculture. — This is a two-year course in practical agriculture offering a high type of training to those who wish to enter some special agricultural enterprise. A separate descriptive catalogue will be sent on request.

Winter School. — A ten weeks' practical course in agricultural and horticultural subjects begins about January first each year. The courses are so arranged that a student may choose such subjects as will enable him to specialize in the line of work in which he is most interested. A catalogue is available on request.

HEALTH SERVICE.

The College endeavors to safeguard the health of all students while on the campus and for this purpose maintains a Department of Student Health, staffed by two physicians, two resident registered nurses and a group of three Infirmary buildings.

(1) Physical examination by the Health Service is required annually of all undergraduate students, or more often if indicated. This examination is given to freshmen during matriculation week. Evidence of a SUCCESSFUL smallpox vaccination is required.

(2) The Student Health physicians have offices in the Physical Education Building and in the Out-Patient Infirmary Building, where they may be consulted during college hours.

(3) The Infirmary consists of 3 buildings, one for bed patients, one for contagious cases, and one for out-patient cases, where the out-patient clinic is conducted daily by one of the Student Health physicians.

(4) The students are urged to consult the resident physicians at the first sign of physical disorder, or even for minor accidents. Many severe illnesses and much lost time can be avoided by early or preventive treatment.

(5) No charge is made to Infirmary bed patients for the first seven days in the school year; time in excess of seven days will be charged at the rate of $2 per day. A nominal charge may be made to out-patients for miscellaneous treatments.

(6) In addition to the fee charged as specified in paragraph 5, the following additional expenses will be charged to the patient.

(a) *Nurses.* — In case a special nurse is required for the proper care of an individual the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the resident nurse.

(b) *Professional Service.* — If a student requires continuous medical attention by a physician, he may be required to select a town physician and become responsible for fees charged by that physician.

(c) *Supplies.* — Special medical supplies prescribed by a physician will be charged to the patient.

(d) *Laundry.* — Expenses for personal laundry incurred by students while in the Infirmary will be charged to the individual student.

STUDENT EXPENSES.

Student college expenses vary from approximately $500 per year to $600 for the normally economical student. First year expenses are usually greater than those of the other three years and there is less opportunity in this year to earn. It is, therefore, recommended to the entering

tudent that he have available at least $450 with which to meet the expenses of the first year. Women students are recommended to plan on a inimum expense of $550.

The following summary of a year's expenses includes only those items hich are strictly college costs and does not include amounts for clothing, ravel, etc., which vary with the individual. Tuition for residents of Massachusetts is $100 and for others $220.

	Low	*Normal*
uition (citizens of Massachusetts)	$100.00	$100.00
oom in college dormitory or in private house	70.00	140.00
oard, $6.50 per week (College Dining Hall)	221.00	221.00
aundry, 50 to 85 cents a week	18.00	30.00
ooks, stationery and miscellaneous items	60.00	90.00
tudent Taxes	25.00	25.00
	$494.00	$606.00

Initial Payment for Freshmen.

The initial payment required of freshmen at the time of fall registration is approximately $190 and is made up of the following items:

uition (citizens of Massachusetts)	$50.00
oom rent (dormitory)	50.00
oard (College Dining Hall to Dec. 1) (Approx.)	60.00
Military Uniform	20.00
Student Tax	13.50
	$193.50

Graduation Requirements.

No student will be graduated unless all bills due the College are paid on r before the Wednesday preceding the graduation exercise. If paid after hat date and otherwise eligible he may graduate the following year.

Diplomas and letters of honorable dismissal will be withheld from all tudents who have not paid bills due the College or legitimate bills for oom rent due fraternities or private individuals.

Advance Payment.

Prospective new students will be expected to make an advance payment f $15 to the Treasurer of the College as soon as they are notified by the Dean that they are accepted for admission. This will be considered as irst payment on registration fees which will be due at time of matriculaion in September and will be returned to the student if he advises the College before August 20 that he will not present himself for admission. f the student fails to notify the College of withdrawal before that date his preliminary payment will be forfeited and will be considered payment for the expenses involved in preliminary admission arrangements.

Refunds.

A student who leaves the College for any reason before a semester is alf completed will have refunded to him one-half the fees paid for that emester, but one who leaves after a semester is half over will be allowed o rebate of fees and a refund only of unused board and room charges.

College Fees.

All students are required to pay the College fees at the Treasurer's Office and file their registration cards in the Dean's Office within one week after the opening of College. Fee for late registration, $1.00.

Tuition. — Residents of Massachusetts are charged a tuition fee of $100 per year, payable in advance in two instalments of $50 each on the

* This tax is for the support of student activities and entitles each student to free participation in the various enterprises represented.

first day of each semester. For those who are not residents of Massach setts, the tuition fee is $220 per year. Students entering from Mas chusetts are required to file with the Treasurer a statement signed town or city clerk, stating that the applicant's father or legal guardi is a legal resident of Massachusetts, unless applicant himself is of leg age, in which case a similar statement must be filed indicating his o legal residence. Where the guardian is certifying to this statement, will be necessary for him to furnish a copy of his appointment by t court.

Military Uniform. — All students taking military drill are required make a deposit of $20 for the uniform. A rebate of this amount is ma when the uniform is returned. Boots are also furnished at approximat $4.25 per pair.

Board. — All freshman students and all residents of college dormitori are required to board at the College Dining Hall. However, upper-cla men, residents of dormitories, may board off-campus but only in approv dining halls which are under faculty supervision. Service is on a ca teria basis and students pay in advance at the rate of approximat $6.50 per week, as follows:

At the opening of college	$62.
At December 1	43.
At the beginning of second semester	44.
Upon return from spring recess	61.

For absences of one week or more rebates at the rate of $5.50 per we may be granted provided the absence is authorized by the Dean and t rebate approved by the Treasurer. No rebates will be allowed for absenc of less than one week.

If a student's home is nearby and for this or any similar reason he regularly absent from the campus over week ends, upon request from h parent or guardian, approved by the Dean of the College, he may board the College Dining Hall for a five-day week (fifteen consecutive mea beginning with Monday breakfast) at the rate of 80 percent of that pa for a seven-day week.

Excuses from compliance with these regulations concerning board sh be made only by the Treasurer of the College, who may require a reco mendation in individual cases from the Student Health Officer, if t excuse is requested for health reasons, or from the Dean if the reason h to do with the student's academic opportunities.

Rooms.

1. It is the policy of the Board of Trustees that freshman men studen and all women students in the four-year course shall be housed campus dormitories in so far as accommodations are available.
2. Since sufficient dormitory accommodations for all of these students a not available at the present time, the following procedure will l followed so that those which are available will be used to capacity a that assignments will be made with justice to all concerned.
3. Dormitories will not be opened until the Saturday preceding the ope ing of College.
4. Each occupant of a college room is held responsible for all dama done to his or her room.
5. All student property must be removed from their rooms immediate after the final examinations in June. Such property not removed by t owner will be removed by the college and stored at the owners expens

Women Students.

a. All freshman girls will be assigned rooms in campus dormitorie The Adviser of Women may excuse any at her discretion for t reasons that they wish to live at home or that they have opportu ity to earn board and room in a private residence.

b. All sophomore girls will live in campus dormitories in so far as accommodations are available unless excused by the Adviser of Women.

c. Upper-class girls may live in campus dormitories if accommodations are available and their wishes will take precedence over the sophomore requirement. Their selection of rooms will be by lot under the supervision of the Adviser of Women.

d. At the close of each college year all sophomore girls will draw lots for dormitory rooms for the next year. Assignments to rooms will be made in accordance with the sequence fixed by this draw. As vacancies occur during the year, the Adviser of Women will assign these vacated rooms to sophomore girls in accordance with this sequence and any student thus assigned to a dormitory room must take up residence there within two weeks after receipt of notice.

e. It is expected that not more than one sophomore girl from any one sorority will be assigned dormitory room in any single year under the provisions of "d."

f. Dormitory accommodations are available for about one hundred and twenty women students in the Abigail Adams House and Draper Hall. These rooms are furnished except for necessary bedding or linen and are cared for by the students occupying them. A list of approved off-campus rooms is kept by the Adviser of Women.

Men Students.

a. Assignment of rooms for men students is in charge of the Assistant Dean.

b. Upper-class men usually obtain rooms in fraternity houses or in private homes near the campus. Rent usually ranges from $2.50 to $4.00 per week, depending upon location and nature of the room. Such rooms are usually furnished.

Students desiring aid in obtaining off-campus rooms should write to the Assistant to the Dean. The College does not secure these rooms for students but does keep a desirable list for student aid.

c. All freshman men students, unless granted permission to commute will be required to room in college dormitories.

d. Dormitory accommodations are available at North College and Thatcher Hall. The rooms are furnished except for necessary bedding and linen. They are cared for by the students who occupy them.

3. The general supervision of housing of students is in charge of the Faculty Committee on Housing.

STUDENT AID.

Students desiring any form of financial aid from the college including scholarship, employment, or loan, are required to file application with the Student Aid Committee not later than June 10 of each year. Incoming freshmen are allowed an extension of time.

These application forms are used to determine the comparative need of the applicants and are passed on by the Student Aid Committee. No student is eligible for any kind of financial assistance from the college unless he or she has filed the required forms and has been certified as deserving by the Student Aid Committee. Application forms may be secured at the Placement Service Office, South College.

For scholarships a special form is required in addition to the usual application. This blank can be obtained at the Placement Office.

For loans a special loan form is required in addition to the usual application. This blank can be obtained at the Treasurer's Office after application has been approved by the Student Aid Committee.

In order to give assistance to as many needy students as possible, the Student Aid Committee has limited the amount of financial aid to any

one student to the equivalent of board at the college dining hall, o approximately $220.

Student Employment.

The College affords opportunity for part-time employment for a limite number of needy students. The number of applicants usually far exceed the number of positions open so that no guarantee can be made that student will find employment through the College. The College Placemen Service renders every possible assistance to deserving students in searc of employment. Besides such opportunities on the campus as waiters an kitchen helpers at the dining hall, janitors for buildings, assistants on th farm and in college laboratories, there are some opportunities in privat homes and businesses in the town.

Prospective students are cautioned not to depend too much upon thei earning capacity in the first year. This year is the most difficult to financ for two reasons. This is the student's first experience with college wor and the usual result is that more time is required for study and less i therefore available for work. In this year also, since it is the first, th student is less familiar with his surroundings and not so able to locat work. Upperclassmen usually have most of the available jobs before th freshmen get acclimated. Students who are planning to enter college fo the first time therefore are advised that they should have at least $45 available with which to meet the expenses of the first year. Some student stay out of school for a year after graduating from high school in orde to work and save this amount.

N.Y.A. Student Employment Projects.

The College has been granted student employment funds by the Federa Government since the adoption of the program. The policy of the Federa Administration cannot be predicted, but it is safe to assume that as lon as student relief projects are in effect this College will be a participan The type of work to which students are assigned under N.Y.A. projec consists of the following: Clerical and office, library and museum, labora tory and research assistance, reading and grading papers and miscellan ous types.

In addition to the college projects, community projects are organize consisting of the following types of work: Education, recreation, healt and welfare and other miscellaneous types.

The rate of pay is 30 cents per hour. The positions are based on th average earning capacity of $15.00 per month. During the past colleg year twelve percent of our students were assigned to positions under th project.

Special consideration is given to new students under these projects, fo while the general college policy does not encourage the new student t seek employment, one of the conditions under which the College partic pates in N.Y.A. projects is that new students receive their pro rata shar

Scholarships.

Scholarships are awarded only to needy students of high characte whose habits of life are economical and who have maintained an averag of at least 70% in their college course during the preceding year. Scho arships from the Crane and Ward Funds may be granted to applicants fo admission to the College provided they are candidates for a degree, are i need of financial assistance and are able to meet the entrance requir ments in full. Complete information relative to the student's need fo financial aid must be presented before any application can be acted upo Scholarships are paid in installments at the beginning of each semest in the form of a credit on the student's bill. A scholarship may be di continued at the close of any semester if the scholastic record of the r cipient is unsatisfactory.

Scholarship funds available this year include the following:

Alvord Dairy Scholarship Fund. A fund of $4,000 received in 1906 by a bequest of Henry E. Alvord. Income used to support a student making a specialty of the study of Dairy Husbandry with the intention of being an investigator, teacher or special practitioner in connection with the dairy industry.

Frederick G. Crane Fund. Gift of Rose P. Crane, Frederick G. Crane, Jr., and Rosemary Crane of Dalton, in 1924, to establish a fund of $25,000 in memory of Frederick G. Crane of Dalton, Mass. Income to be used to aid worthy under-graduate students, preference being given to residents of Berkshire County.

Gassett Scholarship Fund. Fund of $1,500 from Henry Gassett of Boston, Mass., in 1886. Income to be used for general scholarships.

Charles A. Gleason Fund. Bequest of $5,000 from Charles A. Gleason of North Brookfield, Mass., in 1926. Income to be used for general scholarships.

Clarence C. Hardy Scholarship Fund. Bequest of Clarence C. Hardy of Groveland, Mass., in 1934. Income to be used to provide scholarships for needy and worthy young men and women, preference given to graduates of Groveland High School. Amount of fund, $82.49. Not used at the present time.

Porter L. Newton Fund. Fund of $23,411.33 being a gift of Porter L. Newton of Waltham, Mass., in 1926. Income to be used as scholarships for worthy and deserving students being educated along agricultural lines.

Betsey C. Pinkerton Fund. Bequest of $4,500 from Betsey C. Pinkerton, Worcester, Mass., in 1935 to create two general scholarships to two pupils of the schools of Worcester, either boys or girls.

Mary Robinson Fund. Bequest of $1,000 from Mary Robinson of Medfield, Mass., in 1874, income to be used for scholarships for worthy students. Not used at the present time.

Whiting Street Scholarship Fund. Fund of $2,000 by will of Whiting Street of Northampton, Mass., in 1879, income to be used for scholarships for needy students as the faculty may direct.

Helen A. Whittier Scholarship Fund. Fund of $3,193.45 established by Massachusetts State Federation of Women's Clubs in 1929, income to be used as a scholarship in Art as applied to living, as a memorial to Miss Helen A. Whittier. This is for women students only.

J. D. W. French Fund. Gift of the Bay State Agricultural Society in 1923, $10,000. Income to be used to defray expenses of judging teams to national dairy and livestock shows, and also for scholarships, loans and prizes in Dairying and Forestry.

Garden Club Federation of Massachusetts Founder Scholarship in Honor of Margaret F. Motley. One scholarship of $100 for an upperclass student studying Horticulture, Landscape Architecture, or Floriculture.

Hood Dairy Scholarship Fund. Donated each year by Dr. Charles H. Hood of Boston to aid boys whose plan is to engage in the practical side of dairy farming. The $200 available may be awarded to freshmen, sophomores, juniors and seniors. Sometimes this amount is awarded to one student and sometimes it is broken up into two or even four scholarships.

There are also the following special scholarships:

Cotting Memorial Scholarship—all college expenses of freshman year—for a woman student. Recipient of this scholarship is selected by a committee of the New England Branch of the Farm and Garden Association from among candidates proposed by State Leaders of 4-H Club work in the New England states.

Wilbur H. H. Ward Scholarships,—

Twenty-five scholarships of approximately $100 known as the Wilbur H. H. Ward Scholarships. The Wilbur H. H. Ward Fund is administered by a Board of Trustees independent of the Col-

lege. Applicants for these scholarships should write to Mr. Sumner R. Parker, who may be addressed at the College. They are available only to Hampshire County boys.

Women's Student Government Association Scholarship of $50. An award by the Women's Student Government Association to a young woman student at the end of her junior year. The basis of award considers character and personality, scholastic achievement, campus influence and service.

Loans.

Loans may be granted to needy students requiring some assistance in meeting the expenses of the college course. All such loans must be paid before graduation. The student must present a properly endorsed note at the time a loan is made. With the exception of loans from the Lotta Agricultural Fund, money thus loaned is at a low rate of interest until the student graduates or severs his connections with the College.

These loans are made available through the income from the following funds:

Danforth Keyes Bangs Fund. — This is a gift of $6,000 from Louisa A. Baker of Amherst, the income of which is to be used annually in aiding poor, industrious and deserving students to obtain an education in the Massachusetts State College.

Lotta Agricultural Fund. — A limited number of loans are made to students from the income of this fund. Such loans are made without interest but only to deserving students of high scholastic rank. This fund is administered by a Board of Trustees independent of the College although loans are made only upon the recommendation of the President of the College.

Massachusetts Agricultural Club Fund. — The Massachusetts Agricultural Club has given $500 to be used as a loan fund at the Massachusetts State College to help deserving students there who intend to go into agricultural work.

4-H Club Loan Fund for Boys. — A loan fund of $1,000.

4-H Club Loan Fund for Girls. — A loan fund of $100.

Vincent Goldthwait Memorial Loan Fund. — A gift of $5,000 from Dr. Joel E. Goldthwait in memory of his son.

SCHOLARSHIP HONORS AND AWARDS.

Dean's Scholarship Groups. — At the beginning of each semester a list is posted of those students who during the previous semester made a general average of 80 percent or better. Three groups are recognized: those between 90 and 100; those between 85 and 90; and those between 80 and 85. Sophomores, juniors and seniors in the first two groups are allowed considerable freedom in the matter of class attendance.

Departmental Honors. — A student who has shown outstanding promise within some department and has maintained a general scholastic average of 80 percent or better is permitted to apply for the privilege of registering for departmental honors. If his application is accepted by his department and the Honors Committee, he is allowed to pursue a course of independent study within the department of his choice throughout his senior year. This may include intensive reading, investigation or laboratory work in connection with some problem that he chooses for his consideration. The objective is to create on the part of the student initiative, the power of independent investigation and to develop in him the spirit of research. Although the student is responsible for his undertaking he is encouraged to consult with his department in regard to his work should the need arise. At the close of his study the student presents a thesis covering his investigation. In addition he may be required to appear for an oral or written examination. If by the excellence of his work he satis-

es all the requirements of his department and the Honors Committee, his ame will appear on the commencement program as receiving honors in he field of his specialization.

Phi Kappa Phi Elections. — Those members of the senior class whose cholarship average has been 85 or above are eligible for election to the onorary Scholarship Society of Phi Kappa Phi. Not more than 15 per- nt of the class can be elected, however.

Scholastic Prizes.

Phi Kappa Phi Award for Scholarship. — Massachusetts Chapter of he Phi Kappa Phi, honorary scholarship society, offers an award of $50 or outstanding work in scholarship. This is given to some member of he senior class at the opening of college in the fall. The award is based n the record of the first three years.

The Grinnell Prizes. — Given by the Hon. William Claflin of Boston, in onor of George B. Grinnell, Esq., of New York, for excellence in theoreti- al and practical agriculture. The contest is open to those senior students hose records show an average standing of 80 or above for the technical ork taken in the Divisions of Agriculture and Horticulture during the unior and senior years. There are three prizes, $25, $15, and $10.

The Burnham Prizes. — These were made possible through the gener- sity of Mr. T. O. H. P. Burnham of Boston. Prizes of $15 and $10 are warded to those students delivering the best and second best declama- ions in the Burnham contest. The preliminary contests are open under ertain restrictions to freshmen and sophomores.

The Flint Prizes. — The Flint Oratorical Contest was established in 881 by a gift of the late Charles L. Flint, a former president of the ollege. After his death the prizes were continued by college appropria- ion. Prizes of $30 and $15 are awarded as first and second prizes to hose two students delivering the best orations in this contest.

The Hills Botanical Prize. — This is given through the generosity of Ienry F. Hills of Amherst, for the first and second best herbaria. Com- etition is open to members of the senior, junior and sophomore classes. irst prize $20, second prize $15.

The Betty Steinbugler Prize in English. — This prize was endowed by ohn L. Steinbugler, New York City, in honor of his daughter Elizabeth teinbugler Robertson, a graduate of this College in 1929. It is awarded o a woman in the junior or senior class who has written the best long aper on a subject of literary investigation in a course in English during he year.

ATHLETIC AND ACADEMIC PRIZES.

The Allan Leon Pond Memorial Medal. — This medal is awarded for eneral execllence in football in memory of Allan Leon Pond of the class f 1920, who died February 26, 1920. He was a congenial companion, a evoted lover of Alma Mater, a veteran of the Great War, a fine all-round thlete and a true amateur. He would rather win than lose, but he would ather play fair than win. He has been characterized as a typical student f this College.

The Southern Alumni Baseball Cup. — This cup is awarded to that ember of the baseball team who contributes most to the success and eputation of the team, both in respect to skill and spirit.

The Thomas E. Minkstein Memorial Award. — This award is made by he Class of 1931 in memory of their classmate who died July 16, 1930, hile he was captain-elect of football. The award is given to one of the utstanding men in the Junior Class who has as nearly as possible ttained those standards of athletics, scholarship and leadership set by im whose memory this award honors.

The George Henry Richards Memorial Cup. — This cup is awarded annually to the member of the basketball team who shows the greatest improvement in leadership, sportsmanship, and individual and team play during the season. It is in memory of George Henry Richards of the Class of 1921 who died suddenly while a student at the College.

The Joseph Lojko Memorial Plaque. — This plaque is presented to a senior who must be a letter man, have a satisfactory scholastic record and show those qualities of enthusiasm and cooperation which make for leadership. An award in honor of Joseph Lojko of the class of 1934, outstanding athlete who died while a senior in the College.

Academics Conspicuous Service Trophy. — This trophy is awarded annually to that student who has made the most important, single contribution to the Academic Activities during the year.

Academics Managers' Prize. — Fifty dollars in gold awarded annually to that Academics manager who fulfils his duties most efficiently.

Poetry Prizes. — Fiften and ten dollar prizes are awarded to the authors of the best poems published in the *Collegian* during the year.

STUDENT ACTIVITIES AND ORGANIZATIONS.

No small part of the value received from four years of college is the training that one acquires through participation in student activities. Student organizations offer excellent opportunities for leadership in a wide variety of fields.

Student Government.

The Senate. — This is a student governing council. It is composed of representatives elected from the junior and senior classes. Besides acting as general director of undergraduate conduct it represents the interests of the students and the student body before the Faculty.

Adelphia. — This is a senior honorary society. The members are usually chosen from those who have been prominent in college activities. The society attempts in a quiet, unassuming way to mold student life on the campus.

The Honor Council. — The Honor System prevails at this college. The foreword of the Honor System reads as follows: "We, the students of Massachusetts State College, believe that the goal of education is character. The man of character deals fairly with himself, and with others. and would rather suffer failure than stoop to fraud. The Honor System stands for this attitude in all relations of the students with the Faculty. In expression of our belief we pledge ourselves to the support of the constitution of the Honor System." Matters pertaining to the Honor System are in direct charge of the Student Honor Council, consisting of members elected from the four classes.

The Women's Student Council. — All appropriate matters pertaining to the conduct of women students are under the control of this council. It is composed of members selected from the senior, junior, and sophomore classes by all the women students.

Academic Activities.

The College Musical Clubs include an orchestra, a band, and men's and women's glee club. These make various public appearances during the year.

The Dramatic Club, the Roister Doisters, presents annually a revue and two plays, one in the winter, and the other at Commencement. There is a Debating Society which conducts both intramural and intercollegiate debates. All academic activities are supervised by the Academic Activities Board composed of alumni, faculty, and students, and find recognition in semi-annual award of gold and silver medals.

"The Massachusetts Collegian" is a weekly newspaper, published by the undergraduates of the college and featuring an occasional literary supplement.

"The Index" is the college yearbook.

College Fraternities and Sororities.

There are several national and local fraternities represented on the campus. Rushing rules and general matters dealing with fraternity life are in charge of the Inter-fraternity Council. This council awards scholarships, a baseball cup, and a relay plaque to the winners of the Inter-fraternity Contests.

There are also several local sororities and an Inter-sorority Council which deals with affairs of interest to all of the societies.

Inter-Collegiate Athletics.

The College is represented in inter-collegiate athletics by teams in all the leading sports, including football, baseball, track, hockey, soccer, swimming and basketball. General policies, governing athletics are in charge of the Athletic Board, composed of Alumni, Faculty, and students.

Professional Clubs.

There are several professional clubs established in connection with the various major courses of study. These clubs stimulate the students' professional interest in their chosen subject-matter fields and afford opportunity for discussion of technical subjects of mutual interest.

Religious Organizations.

Four religious organizations are active on the Campus: The Christian Federation, the Menorah Club (for Jewish students), the Newman Club (for Catholic students), and the Stockbridge Y (for two-year students). These four organizations unite in forming a Student Religious Council which strives both to further amity among the religious faiths and to promote religious activities and thinking in the student body. These various religious organizations are sponsored by a Faculty Committee on Religious Work and are under the supervision of the Director of Religious Education. The College conducts a vesper service each Sunday at five o'clock during the school year at which some of the great religious leaders of our country speak.

The Social Union.

The Social Union was established in 1907. All students become members of the Union in consideration of a small part of the Student Activities Fee. In the fall and winter months the Union gives a series of entertainments.

STANDARDS OF DEPORTMENT.

The customary high standard of college men and women in honor, self-respect and consideration for the rights of others constitutes the standards of student deportment.

The privileges of the College may be withdrawn from any student at any time, if such action is deemed advisable.

It should be understood that the College, acting through its President or any administrative officer designated by him, distinctly reserves the right, not only to suspend or dismiss students, but also to name conditions under which students may remain in the institution. For example, if a student is not doing creditable work he may not only be disciplined but he may also be required to meet certain prescribed conditions in respect to his studies, even though under the foregoing rules his status as a student be not affected. The same provision applies equally to the matter of absences ("cuts"). According to the rules, juniors and seniors are

allowed a certain percentage of absences from class and other exercises. This permission, which implies a privilege and not a right, may be withdrawn at any time for any cause.

Similarly, also, it applies to participation in student activities. Though this will ordinarily be governed by the rules as already laid down, yet if in the judgment of the college authorities, a student is neglecting his work on account of these activities, the privilege of participating in them may be withdrawn for such time as is considered necessary. Moreover, it may be withdrawn as a punishment for misconduct. Prospective students or their parents may, upon application, obtain a copy of the faculty rules governing student relations to the College.

FRESHMAN REGISTRATION.

All members of the incoming freshman class are required to be in residence on the campus for the period of September 18 to September 23, 1939, inclusive. This period is known as Freshman Week. During this week will be given the several psychological examinations and tests required of freshmen. In addition, physical examinations will be given to the men students. Such matters as pertain to schedule and section assignments will be taken care of at the same time. Lectures on student activities, college customs, and college curriculum will be given also. The object of this week is to introduce the new student into the College, so that only the minimum amount of time will be lost when the actual studies begin.

Admission to Collegiate Courses

A. APPLICATION FOR ADMISSION.

Correspondence concerning admission should be addressed to the Dean's office.

Every applicant for admission to the College must be at least sixteen years old, and must present to the Dean proper testimonials of character, which, whenever possible, should come from the principal of the school at which the applicant has prepared for college. All applications for admission should be received at the Dean's office on or before June first of the year in which the candidate expects to enroll. Blanks for such application may be obtained by addressing the Dean of the college. All entrance credentials must be in the hands of the Dean before the applicant can matriculate.

B. MODES OF ADMISSION.

Students are admitted to the freshman class either upon certificate or upon examination. No *diploma* from a secondary school will be accepted.

CERTIFICATES. — Massachusetts State College is affiliated with the New England College Entrance Certificate Board. Therefore certificates of admission will be accepted from any Massachusetts school listed as class "A" by the State Department of Education, but not included in the approved list of the New England College Entrance Certificate Board. Principals of schools in New England who desire the certificate privilege should address the secretary of the Board, Professor Frank W. Nicolson, Wesleyan University, Middletown, Conn. Certificates from schools outside of New England may be received if those schools are on the approved list of the leading colleges of the section in which the school in question is located.

The credentials of the Board of Regents of the State of New York are accepted as satisfying the entrance requirements of this college when offered subject for subject, provided the grades are satisfactory.

Certificates in order to be accepted must present in the prescribed and restrictive elective groups at least three of the necessary fourteen and one-half units. It is to be understood, however, that responsibility for certification in either elementary French, elementary German, English 1 or English 2, Latin A, Greek A or Algebra, must be assumed by one school, if the candidate has received his preparation in any one subject named above in more than one school. Subjects lacking on certificate must be made up at the time of the examinations for admission. Conditions to the amount of two units will be allowed.

Blank forms for certification—sent to principals or school superintendents only—may be obtained on application to the Dean of the college.

SPECIAL CERTIFICATE ARRANGEMENT FOR STUDENTS FROM AGRICULTURAL SCHOOLS. — Superior graduates of Vocational Schools of Agriculture in Massachusetts and Vocational Agricultural Departments in Massachusetts High Schools may be accepted for the Degree of Vocational Agriculture provided:—

(*a*) They are unqualifiedly recommended by the Vocational Division of the Department of Education as *bona fide* Vocational Graduates with superior rank; and

(*b*) that they can present at least 14½ units of certified entrance, approved as to quality and quantity by the State Department of Vocational Education.

ADMISSION BY FOUR COMPREHENSIVE EXAMINATIONS. — By this plan a candidate's qualifications for admission will be based upon the following considerations:

(*a*) SCHOOL RECORD: A candidate must present to the Committee on Entrance a complete transcript of his secondary school course giving the subjects and the grades for the four years previous to college entrance, and a confidential estimate of character, personality, and promise of ability to do college work from the school principal. This should be sent to the Dean not later than May 1. The Committee must give its permission before the applicant may take the examinations.

(*b*) The following comprehensive examinations must be taken unless for satisfactory reasons the Committee allows a substitution for 3:—

1. English . . . . . three units.
2. Mathematics, either Mathematics Beta or Mathematics A.
3. A foreign language, selected by the applicant . two units.
4. A fourth subject designated by the applicant and approved by the Committee on Admissions.

These must be the College Entrance Examination Board Plan B examinations given in June. A candidate under this plan will be admitted without condition or refused admission. In the event that a substitution is allowed for foreign language the student must take at least one year of modern language in college without receiving college credit therefor.

C. EXAMINATIONS.

Entrance examinations for admission to the Massachusetts State College will be held at the following centers.—

In June . . .	Amherst, Stockbridge Hall, room 114.
	Cambridge, Massachusetts Institute of Technology, Massachusetts Ave. entrance.
In September . .	Amherst, Stockbridge Hall, room 114.

Please note that September examinations are held in Amherst only.

Schedule for Entrance Examinations June 15-17, 1939

First Day.

8.30 A.M. Algebra.
10.30 A.M. Chemistry.
2.00 P.M. History (ancient, European, English, United States and Civics).

Second Day.

8.30 A.M. English 1 and 2.
11.30 A.M. Biology.
2.00 P.M. Plane Geometry.
3.30 P.M. Physics.

Third Day.

8.30 A.M. French, German, Spanish, required and elective.
1.00 P.M. Latin, elementary, intermediate and advanced. Solid geometry and Trigonometry.

Schedule for Entrance Examinations September 13-15, 1939.

First Day.

8.30 A.M. Algebra.
10.30 A.M. Chemistry.
2.00 P.M. History (ancient, European, English, United States and Civics).

Second Day.

8.30 A.M. English 1 and 2.
11.30 A.M. Biology.
2.00 P.M. Plane Geometry.
3.30 P.M. Physics.

Third Day.

8.30 A.M. French, German, Spanish, required and elective.
1.00 P.M. Latin, elementary, intermediate and advanced. Solid geometry and Trigonometry.

D. REQUIREMENTS FOR ADMISSION.

The requirements for admission are based on the completion of a four-year high school course or its equivalent and are stated in terms of units. A unit is the equivalent for at least four recitations a week for a school year.

Fourteen and one-half units must be offered for admission in accordance with the entrance requirements outlined below. In some instances students are allowed to enter with conditions in not more than two units.

Entrance Requirements.

1. *Prescribed.* — The following units are required:—

Algebra	1½
Plane Geometry	1
English 1 (Grammar and Composition)	2
English 2 (Literature)	1
History	1
A foreign language	2
	8½

2. *Restricted electives.* — From two to six units selected from the following subjects:—

Mathematics and Science.

Solid Geometry	½
Trigonometry	½
Biology	1
*Botany	½ or 1
Chemistry	1
*Geology	½
*Physical Geography	½
Physics	1
*Physiology	½
*Zoölogy	½

History.

Ancient	1
English	1
European	1
United States and Civics	1

Foreign Languages.

Elementary French	2
Elementary German	2
Elementary Spanish	2
Elementary Latin	2
*Elementary Greek	2
Intermediate French	1
Intermediate German	1
Intermediate Spanish	1
Intermediate Latin	1
*Intermediate Greek	1
Advanced French	1
Advanced German	1
Advanced Spanish	1
Advanced Latin	1

* No examinations given. To be offered for entrance credit on certificate only.

3. *Free margin electives* — not over four units. In case fourteen and one-half units cannot be presented in the prescribed and restricted elective groups, units not to exceed four may be offered as free margin electives. Credit in the free margin will be allowed for any substantial courses (agriculture, general science and fourth year English included) not listed under the prescribed and restricted elective groups for which credit of not less than one-half unit earned in one year is given toward a secondary school diploma. Since no entrance examinations are given in these subjects they may be offered only on certificate.

E. OTHER INFORMATION ABOUT ENTRANCE.

1. If elementary algebra and plane geometry are counted as three units the total requirement for admission will be fifteen.
2. Both the credits under the prescribed and restricted elective groups must be presented either by certificate from an approved school or by examination or by a combination of both. Credit by certificate will not be accepted unless at least three units are offered.
3. Candidates are allowed to spread their entrance examinations over the three consecutive periods just previous to their entrance into college. A period means June to September of the same year.
4. Examinations for the removal of entrance conditions will be held during the second week of January.
5. All entrance conditions must be satisfied before a student is permitted to enter upon the work of the sophomore year.
6. The privileges of the College may be withdrawn from any student at any time if such action is deemed advisable, regardless of whether entrance was gained by certificate or by examination.
7. The passing grade for an entrance examination is 60 per cent.

F. ADMISSION TO ADVANCED STANDING.

A student desiring to transfer to this College from another of recognized standing must present the following credentials:—

1. A letter of honorable dismissal from the institution with which he has been connected.
2. A statement or certificate of his entrance record.
3. A statement from the proper office showing a complete record of his work while in attendance.
4. A marked catalogue showing the courses pursued.
5. A statement from the proper officer, giving the total number of credits required for graduation by the institution from which the applicant is transferring, and, of this total, the number that the applicant has satisfactorily completed at the time of the transfer.

The above credentials must be sent directly from the Registrar's office of the college from which the student is transferring. They should be addressed to the Dean of Massachusetts State College. Applications will be judged wholly on their merits. The College may prescribe additional tests before accepting applicants or determining the standing to be granted them.

At least one year's work in residence is required of any student desiring to be recommended for the Bachelor's degree.

G. STATEMENT OF PREPARATION REQUIRED FOR ADMISSION

Agriculture.

Entrance credit in agriculture is granted on the following basis:—

I. Massachusetts State College accepts a maximum of four units in agriculture (except as described on page 37) from any secondary or county agricultural high school offering work in that subject, provided evidence of such work having been done is submitted on a principal's statement, as is indicated in the "free margin" group.

II. In high schools organizing agricultural club work under the supervision and rules of the junior extension service of the College, one credit is granted for each full year of work performed under the following plan:—

Work of the Winter Term. — (*a*) The study of textbooks such as are suitable for secondary school instruction in agriculture.

(*b*) Course of study: A general outline of suggested topics for study.

(*c*) Visits by a representative of Massachusetts State College for observation, counsel and advice in regard to kind and amount of work being done in agriculture.

(d) Formation of an agricultural club with officers from among its own members, meeting once a month under local supervision of someone authorized to act for the school authorities.

Work of the Spring Term. — Same in general form as winter term.

Work of Summer Term. — An approved project conforming to the rules of some one or more of the agricultural clubs of the Junior Extension Service of Massachusetts State College.

Work of the Fall Term. — (*a*) An exhibit of work.

(*b*) Reports and story of achievement submitted to the Junior Extension Service of the college.

Biology.

The entrance examination in biology will cover the work outlined by the College Entrance Examination Board. This work should extend through one full year and include both laboratory and textbook study. The requirements are met by Hunter's *Civic Biology,* Peabody & Hunt's *Biology and Human Welfare* and similar texts.

Botany.

For one unit of credit in botany, the work outlined in the statement of requirements issued by the College Entrance Examination Board, or its equivalent, will be accepted. This work should occupy one school year and include laboratory and supplementary textbook study. For one-half unit of credit, work that covers the same ground but occupies half the time required for a full unit of credit will be accepted. These requirements are met by such texts as Stevens' *Introduction to Botany* and Bergen & Davis' *Principles of Botany.* A notebook, containing neat, accurate drawings and descriptive records forms part of the requirement for either the half-unit or the one-unit credit. The careful preparation of an herbarium is recommended to all prospective students of this College, although the herbarium is not required.

Chemistry.

The entrance examination in chemistry will cover the work outlined by the College Entrance Examination Board as preparatory for college entrance. In general, this consists of a year of high school chemistry from any standard textbook, with laboratory work on the properties of the common elements and their simpler compounds. No particular work is prescribed. The keeping of a notebok is required.

Mathematics.

(*a*) *Required.* — Algebra: The four fundamental operations for rational algebraic expressions; factoring, determination of highest common factor and lowest common multiple by factoring; fractions, including complex fractions; ratio and proportion; linear equations, both numerical and literal, containing one or more unknown quantities; problems depending on linear equations; radicals, including the extraction of the square root of polynomials and numbers; exponents, including the fractional and negative; quadratic equations, both numerical and literal; simple cases of equations with one or more unknown quantities that can be solved by the methods of linear or quadratic equations; problems depending upon quadratic equations; the binomial theorem for positive integral exponents, the

formulas for the *n*th term and the sum of the terms of arithmetic and geometric progressions, with applications.

Plane Geometry: The usual theorems and constructions of good textbooks, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas, regular polygons and the measurement of the circle; the solution of numerous original exercises, including loci problems, applications to the mensuration of lines and plane surfaces.

(*b*) *Electives.* — Solid Geometry: The usual theorems and constructions of good textbooks, including the relations of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders and cones; the sphere and spherical triangle; the solution of numerous original exercises, including loci problems; applications to the mensuration of surfaces and solids.

Plane Trigonometry: A knowledge of the definitions and relations of trigonometric functions and of circular measurements and angles; proofs of the principal formulas and the application of these formulas to the transformation of the trigonometric functions; solution of trigonometric equations, the theory and use of logarithms, and the solution of right and oblique triangles. Students should bring logarithm tables to the examination.

Physics.

To satisfy the entrance requirements in physics, the equivalent of at least one unit of work is required. This work must consist of both classroom work and laboratory practice. The work covered in the classroom should be equal to that outlined in Hall & Bergen's *Textbook of Physics* or Millikan & Gale; the laboratory work should represent at least thirty-five experiments involving careful measurements, with accurate recording of each in laboratory notebook.

Physiology.

Hough & Sedgwick's *The Human Mechanism;* Martin's *The Human Body; Briefer Course.*

Zoology, Physical Geography, Geology.

The following suggestions are made concerning preparation for admission in the subjects named above:—

For physiography, Davis' *Elementary Physical Geography;* Gilbert & Brigham's *Introduction to Physical Geography.* For zoölogy, textbooks entitled *Animals* or *Animal Studies,* by Jordan, Kellogg and Heath; Linville & Kelley's *A Textbook in General Zoölogy.* For geology, A. P. Brigham's *A Textbook of Geology* or Tar's *Elementary Geology.*

History.

The required unit must be offered in either ancient history, medieval and modern history, English history, or United States history and civics. Either one, two or three elective units in any of the historical subjects here named may be offered, provided that no unit be offered in the same subject in which the required unit has been offered.

Preparation in history will be satisfactory if made in accordance with the recommendations of the committee of seven of the American Historical Association, as outlined by the College Entrance Examination Board. The examination will require comparisons and the use of judgment by the candidate rather than the mere use of memory, and it will presuppose the use of good textbooks, collateral reading and practice in written work. Geographical knowledge may be tested by requiring the location of places and movements on outline maps.

To indicate in a general way the character of the textbook work expected, the texts of the following authors are suggested: Botsford, Morey

or Myers, in ancient history (to 814 A.D.); Montgomery, Larned or Cheyney, in English history; Fiske, together with Muzzey and West, in United States history and civics.

English.

The study of English in school has two objectives: first, the ability to use the English language, in both speech and writing, clearly, correctly and effectively; and, second, the ability to read English literature with understanding and appreciation.

(1) *Speech and Writing* (Two Units). — The first objective makes necessary a rigorous and reiterated instruction in grammar and composition, with special emphasis upon spelling, sentence structure, punctuation and paragraph development.

(2) *Reading* (One Unit). — The second objective is that of the progressive, four-year course in literature. The student should be trained to read aloud, to memorize significant passages, to associate the books with their historic background and to have well in hand both content and structure. He should be prepared to answer general questions upon poetry, the essay, prose fiction, the drama and biography by the representation of varied and definite detail from such standard books as those recommended by the College Entrance Examination Board in its current bulletin. However accurate in subject matter, no paper will be considered satisfactory if seriously defective in punctuation, spelling or other essentials of good usage.

The candidate may effect admission in English: by passing the College Entrance Examination Board's comprehensive examination (3 units), by certification, from an accredited school, in English 1 (2 units) and English 2 (1 unit); or by passing this College's examinations in these subjects in June or in September. Regardless of his method of admission, however, he will be gravely handicapped in his freshman English courses if inadequately prepared in any one of the three phases of study indicated in this statement.

Foreign Languages.

(French, Spanish, German, Latin, Greek.)

Two, three, or four* units of entrance credit in each of the above foreign languages may be presented by certificate or by written examination. Not less than two units (first two years) will be accepted in any one language.

No examination for a third or a fourth unit of credit in any language will be given unless the candidate has previously presented by certificate or by written examination the two or three preceding units respectively in that language.

The preparation expected for each of the above units is that stated in the Definition of Requirements of the College Entrance Examination Board.

* A maximum of three units may be offered in Greek. The College does not offer an entrance examination in Greek.

Collegiate Course of Instruction

The course of study consists of four years of work leading to either the Bachelor of Science (B.S.) or the Bachelor of Arts (A.B.) degree. The following seven major lines of specialization are provided: Agriculture; General Engineering; Home Economics; Horticulture; the Physical and Biological Sciences; Physical Education (for men); and Liberal Arts. Additional fields of specialization are provided in Recreational Planning and Wild Life Management under the direction of special advisory committees.

FRESHMAN YEAR.

The work of the freshman year consists of definitely required subjects selected to meet the requirements of the Divisional Major groups.

English 1 and 2 are required of all students; Mathematics 1 and 2 are required of all except those majoring in Home Economics; Military 1 and 2, Physical Education 1, 3, and 4 are required of all men; Special course 5 and 6, Physical Education 1, 7, and 8 are required of all women.

In addition, each student must select one of the following Divisional Major groups and complete the courses indicated in that group:

I. AGRICULTURE
- Chemistry 1 and 2
- Animal Husbandry 1 and Agronomy 2
- History 5 and 6 or Biology (Botany 1 and Zoology 1). One semester of Orientation may be substituted for one semester of either History or Biology

II. GENERAL ENGINEERING
- Engineering 1 and 2
- Chemistry 1 and 2
- One of the following:
  - Biology (Botany 1 and Zoology 1).
  - History 5 and 6
  - German 1 and 2 or 5 and 6
  - French 1 and 2 or 5 and 6 or 7 and 8

One semester or Orientation may be substituted for one semester of either Biology or History.

III. HOME ECONOMICS
- Home Economics 1 and 2
- Chemistry 1 and 2
- Orientation 1
- Math 1 and 2 or
- German 1 and 2 or 5 and 6 or
- French 1 and 2 or 5 and 6 or 7 and 8

IV. HORTICULTURE
- Horticulture 1 and Agronomy 2
- Two of the following, one of which must be either Biology or Chemistry:
  - Biology (Botany 1 and Zoology 1)
  - Chemistry 1 and 2
  - History 5 and 6
  - Orientation 1

Those majoring in Forestry or Horticultural Manufactures should take both the Biology and the Chemistry.

V. PHYSICAL and BIOLOGICAL SCIENCES
- Chemistry 1 and 2
- Biology (Botany 1 and Zoology 1)
- History 5 and 6 may be substituted for either Chemistry or Biology by permission of the Dean.
- German 1 and 2 or 5 and 6 or
- French 1 and 2 or 5 and 6 or 7 and 8

VI. PHYSICAL EDUCATION
- German 1 and 2 or 5 and 6 or
- French 1 and 2 or 5 and 6 or 7 and 8
- Two of the following, one of which must be either Biology or Chemistry:
  - Biology (Botany 1 and Zoology 1)
  - Chemistry 1 and 2
  - History 5 and 6
  - Orientation 1

VII. LIBERAL ARTS
- Biology (Botany 1 and Zoology 1) or
- Chemistry 1 and 2
- German 1 and 2 or 5 and 6 or
- French 1 and 2 or 5 and 6 or 7 and 8
- History 5 and 6. One semester of Orientation may be substituted for one semester of History.

SOPHOMORE YEAR.

The work of the sophomore year is also largely prescribed in order to insure as broad a cultural background as possible in preparation for the more specialized training of the last two years. Under the guidance of a major group advisory committee the student begins in this year certain optional choices of electives leading to the special courses of major work which he will later pursue. This course is presented on the following page in tabular form.

TABLE OF SOPHOMORE SUBJECTS.

(Groups A and C are required of all sophomore men; Groups A and D of all sophomore women; and two of the electives of Group B must be selected by each sophomore, with the approval of his major group advisory committee.

Group		First Semester	Cr.	Second Semester	Cr.
A		English 25 and 29	3	English 26 and 30	3
		Economics 25 or	3	Economics 25 or	3
		Psychology 26	3	Psychology 25	3
		Sophomore Science	3	Sophomore Science	3
B	I	AGRICULTURE divisional electives			
		Dairy 25 or Poultry 25	3	Animal Husbandry 26	3
		Bacteriology 31	3	Mathematics 30	3
		Mathematics 29	3	Chemistry 32	3
		Chemistry 31	3	Agricultural Economics 26	3
	II	GENERAL ENGINEERING electives			
		Mathematics 29	3	Mathematics 30	3
		Physics 25	3	Physics 26	3
		Engineering 21	3	Engineering 22	3
				Engineering 26	3
	III	HOME ECONOMICS divisional electives			
		Home Economics 31	3	Home Economics 26	
		Drawing 31	3	Home Economics 30	3
	IV	HORTICULTURE and LANDSCAPE ARCHITECTURE divisional electives			
		Olericulture 25	3	Pomology 26	3
		Drawing 25	3	Drawing 26	3
		Botany 25	3	Entomology 26	3
		Chemistry 25	3	Floriculture 26	3
		Bacteriology 31	3	Horticulture 26	3
	V	PHYSICAL and BIOLOGICAL SCIENCE divisional electives			
		Mathematics 29	3	Geology 28	3
		Physics 25	3	Mathematics 30	3
		Chemistry 25	3	Physics 26	3
		Zoology 25	3	Chemistry 26	3
		Botany 25	3	Zoology 26	3
		Chemistry 31	3	Physiology 32	3
				Chemistry 32	3
				Entomology 26	3
				Mathematics 26	3
				Physics 28	3
	VI	PHYSICAL EDUCATION divisional electives			
		For those men specializing in Physical Education and Teacher-Coaching, electives from the Physical and Biological Science division should be selected; for those specializing in Recreation and Leisure-Time Training, electives from the Horticulture and Landscape Architecture division should be selected.			
	VII	LIBERAL ARTS divisional electives			
		French 7, 29, or 31	3	French 8, 30, or 32	3
		German 25 or 27	3	German 26 or 28	3
		History 25	3	Economics 26	3
		History 31	3	History 32	3
				Sociology 28	3
C		Military 25	2	Military 26	2
D		Physical Education 27	2	Physical Education 28	2

JUNIOR AND SENIOR YEARS.

The work of the junior and senior years is, with certain restrictions, elective under the guidance of a special adviser, who is a member of the advisory committee of the major group which the student selects during his freshman year as his field for professional training. The aim of the

last two years is to give to each student as high a degree of proficiency in some one branch of learning as is possible without sacrificing the breadth of knowledge and training which should characterize a well-rounded college course. In order to insure this result, each student is required to complete, during his last two years of study, certain requirements for specialization within his major group* and is advised to take at least three courses in other groups:

I. Agriculture: Departments of Agronomy; Animal Husbandry; Dairy Industry; Agricultural Economics and Farm Management; Poultry Husbandry.
II. General Engineering.
III. Home Economics: Department of Home Economics.
IV. Horticulture: Departments of Floriculture; Forestry; Landscape Architecture; Horticultural Manufactures; Olericulture; Pomology.
V. Physical and Biological Sciences: Departments of Bacteriology and Physiology; Botany; Chemistry; Entomology and Zoölogy; Geology and Mineralogy; Mathematics; Physics; Veterinary Science.
VI. Physical Education: Department of Student Health; Physical Education for Men; Physical Education for Women.
VII. Liberal Arts: Departments of Economics; Education and Psychology; History and Sociology; Languages and Literature.

Specific Requirements.

Rule 1. *Credits for Graduation.* — The minimum number of credits for graduation shall be 60 junior-senior credit hours, in addition to the satisfactory completion of the required course of the freshman year and of the required and elective groups of the sophomore year.

Rule 2. *Credits Each Semester.* — Except upon special permission from the Scholarship Committee, no student shall enroll for more than 17 nor less than 14 credits each semester of his junior and senior years.

Rule 3. *Specialization.* — At the close of his sophomore year each student shall designate some department within his major group in which he desires to specialize, and shall complete, during his junior and senior years, not less than 15 and not more than 30 credits in junior-senior courses offered in that department.

Rule 4. *Credit in Military Science and Tactics.* — Not to exceed 10 junior-senior credits in Military Science may be included in the minimum requirements for graduation.

Rule 5. *Advisers.* — The work of each student will be under the general supervision of his major group advisory committee from the beginning of his sophomore year, and during his junior and senior years under the immediate supervision of a special adviser who shall be some member of that committee and shall represent the department in which the student is to specialize under the terms of Rule 3. The adviser has full authority to prescribe the student's work required by Rule 3, and may advise the student with reference to his elections under Rule 6.

Rule 6. *Free Electives.* — Subject to the limitations imposed by Rules 2, 3, and 4, each student may elect during his junior and senior years any course offered in the catalogue for which he has the necessary prerequisite training. Students are advised to elect at least three courses in divisions other than the one in which they are registered for their major work.

* Students specializing in Recreational Planning or Wild Life Management should consult the special adviser in charge of the course as to the requirements in the various major groups.

Description of Courses

[Heavy-faced Roman numerals indicate the semester in which the course is given. Numbering of courses: 1 to 24, inclusive, freshmen; 25 to 49, inclusive, sophomores; 50 to 74, inclusive, juniors; 75 to 99, inclusive, seniors.]

Note: Where possible, the class hours are included in the course description. A complete schedule of class hours will be published later.

SPECIAL COURSES FOR FRESHMEN.

1. I. ORIENTATION COURSE. — For freshmen. A survey course for those desiring further training in methods of study and thinking and at the same time a broad view of the physical universe. The course aims to organize as a unity materials from astronomy, geology, chemistry, and physics and to build these into a picture of the known universe. The scientific method by which principles are developed is stressed as well as facts. The subject matter is used as a basis for showing proper procedure in developing sound study and thought habits.

3 class hours. Credit, 3.

Assistant Professor LANPHEAR.

5. I. COLLEGE ADJUSTMENTS. — For freshman women. A study of the experiences of everyday life in college, to help students recognize various social problems and think in terms of their solution.

1 class hour. Credit, 1.

Miss SKINNER.

6. II. VOCATIONAL OPPORTUNITIES FOR WOMEN. — For freshman women. An outline of the occupational progress of women, with special attention to the opportunities for women in those vocations for which the Massachusetts State College gives foundation preparation.

1 class hour. Credit, 1.

Miss HAMLIN.

Department of Engineering

Professor GUNNESS, Assistant Professor MARKUSON, Assistant Professor TAGUE, Assistant Professor MARSTON, MR. PUSHEE, MR. NEWLON.

AGRICULTURAL ENGINEERING.

The courses in agricultural engineering are planned to give a working knowledge of those phases of engineering which apply directly to the farm. It is expected that the student will acquire a clear understanding of modern farm practice as it relates to permanent improvements of the farm and the farmstead, and in the selection and use of farm equipment. Student intending to major in agricultural engineering should pursue the freshman curriculum for agriculture.

Elective Courses.

50. II. SHOP WORK. — For juniors; seniors may elect. This course gives instruction in the care and use of carpenters' tools through bench work, repair of farm equipment, and building construction. Practice in building forms, mixing and placing concrete, framing, cutting rafters, etc., make up this portion of the subject. Instruction in forging, pipe fitting, soldering, and the use of machinists' tools for the repair of farm machinery and miscellaneous farm equipment, together with a study of pumps and water supply systems make up the other portion of the work.

3 2-hour laboratory periods, credit, 3.

1:00-2:40 M. W. F. Mr. PUSHEE and Mr. NEWLON.

60. II. HOUSEHOLD EQUIPMENT. (1938-39). — For juniors and seniors. A study of the selection, operation, care, and efficient arrangement of

equipment, with an analysis of the time and energy required in various processes. Given in alternate years.

2 class hours. 1 2-hour laboratory period, credit, 3

Assistant Professor TAGUE.

71. I. MOTORS. — For seniors; juniors may elect. The course deals with the gasoline engine as used for stationary work, automobiles, and tractors. The theory of the internal combustion engine is taken up in order to emphasize the effect of design and operation on power and economy. The various types of carburetors, ignition, and lubrication systems are studied in detail. Instruction is given by means of lectures and text books, and by operating and repairing stationary engines, automobiles and tractors. Special attention is given to overhauling and repairing. This course also deals with the application of electricity to farm operations including wiring and electric motors, and refrigeration equipment as used on New England farms.

3 2-hour laboratory periods, credit, 3

1:00-2:40 M. W. F. Assistant Professor TAGUE and Mr. PUSHEE.

72. II. DRAINAGE AND IRRIGATION ENGINEERING. — For seniors; juniors may elect. The course covers the engineering phase of drainage and irrigation. The various systems are studied, and practice is given in the design of drainage and irrigation systems. Field work gives practice in surveying for drains, platting, locating drains, erecting batterboards and laying tile. Practice is given in assembling equipment for spray irrigation, and the flow of water through nozzles is studied by means of laboratory tests.

1 class hour. 1 2-hour laboratory period, credit, 2

Assistant Professor MARKUSON.

74. II. FARM STRUCTURES. — For seniors; juniors may elect. A study of the strength and durability of concrete, wood, stone, and clay products and of the mechanical principles underlying their use in farm construction. The design of various farm buildings, such as the general purpose barn, dairy stable, hog house, sheep barn, milk house, fruit storage, etc. are studied. In the drafting room, details of construction will be worked out, a study of the mechanics of simple roof trusses will be made, and a complete design of some major farm building will be finished in all essential details. Blueprints of the finished design will be made.

1 class hour. 2 2-hour laboratory periods, credit, 3

10:00-10:50 Tu.; 1:00-2:40 M. F. Assistant Professor MARKUSON.

80. II. DAIRY MECHANICS (1939-40). — For juniors; seniors may elect. A study of dairy machinery, including steam boilers, engines, pumps, traps, refrigeration machinery, and heat-controlling devices. Practice is given in pipe fitting, packing valves, lacing belts, and similar repair jobs on the equipment used in dairy plants. Given in alternate years.

1 class hour. 1 2-hour laboratory period, credit, 2

Assistant Professor TAGUE and Mr. NEWLON.

83. I. 84. II. AGRICULTURAL ENGINEERING PROBLEMS. — Open only to seniors specializing in agricultural engineering. This course consists of individual problems chosen by the students under guidance of the department. The work is of an advanced nature, supplementing that of the regular agricultural engineering curriculum. Copy of project outline indicating the number of credits, must be filed with the department and with the Dean at the opening of the semester.

Hours by arrangement. Credit, 2

The DEPARTMENT.

85. I. RURAL ELECTRIFICATION (1938-39). — For seniors; juniors may elect. This course is planned primarily for students who are interested in the application of electricity to agriculture. It includes a study of the generation and distribution of electricity for light and power. Special emphasis is placed on the utilization of electricity on the farm and in rural communities. Given in alternate years.
2 class hours. 1 2-hour laboratory period, credit, 3.
Hours by arrangement. The DEPARTMENT.

GENERAL ENGINEERING.

The courses in general engineering are designed to give fundamental training for the several fields of technology, with the expectation that proficiency in a specific field is to be acquired in graduate work or in industry. Students specializing in other departments will find some of these courses useful for their objectives.

Elective Courses.

1. I. ENGINEERING DRAWING. — For freshmen; others may elect. Elements of engineering drawing, lettering, projections, interpreting of working drawings, tracings, pictorial representation of machine parts, and engineering problems.
3 2-hour laboratory periods, credit, 3.
Mr. SWENSON.

2. II. DESCRIPTIVE GEOMETRY. — For freshman; others may elect. Orthographic projection; profile plane; location of points; lines and planes, revolution of points; points on lines; planes and angles; plane, cylindrical, conical, and warped surfaces; surfaces of revolution; intersection of surfaces; tangent lines and planes. Textbook, lectures, and drafting.
2 class hours. 1 2-hour laboratory period, credit, 3.
Mr. SWENSON.

21. I. SHOP PRACTICE. — For sophomores; juniors and seniors may elect. Unit bench operations for wood and metal work; care and use of tools and machines.
3 2-hour laboratory periods, credit, 3.
The DEPARTMENT.

22. II. SHOP PRACTICE. — For sophomores; juniors and seniors may elect. A continuation of Shop Practice 21.
2 2-hour laboratory periods, credit, 2.
The DEPARTMENT.

26. II. PLANE SURVEYING. — For Sophomores; juniors and seniors may elect. The course considers the elements of land surveying, including the adjustment and use of the engineer's transit and level.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Assistant Professor MARSTON.

32. S. SURVEYING PRACTICE. — This is a three-weeks practice course offered for those who have had previous training in surveying. It consists of transit and plane table surveys of two areas containing about twenty acres. Differential leveling and simple field determinations of latitude and meridian are also part of the program.
3 44-hour weeks. June 13 - July 2, 1939. Credit, 3.
Assistant Professor MARSTON.
Prerequisite, Engineering 26 or permission of the instructor.

51. I. HOUSE PLANNING AND CONSTRUCTION. — For juniors; seniors may elect. Plan designs of the small house will be made. The arrangement of interior equipment, especially in the kitchen, lighting, heating, water supply, and sewage disposal will be studied, together with a brief

history of the house, materials, construction methods, equipment, and architectural styles. Consideration will be given to the economics of house building, including financing and to maintenance and overhead expense.
1 class hour. 2 2-hour laboratory periods, credit, 3.
8:00-8:50 Th.; 1:00-2:40 W.; 8:00-9:50 S.
Assistant Professor MARKUSON.

53. I. APPLIED MECHANICS. — For juniors and seniors. The follow-topics are considered in the study of statics; colinear, concurrent, non-concurrent and parallel force systems in a plane and in space; static friction problems; first and second moments. The free-body method of analysis is emphasized. Algebraic and graphical solutions are determined.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor MARSTON.
Prerequisites, Physics 26; Mathematics 30.

54. II. APPLIED MECHANICS (KINETICS). — For juniors and seniors. This is a continuation of Engineering 53 into the field of kinetics. It is a problem course concerned with the engineering applications of the fundamental principles of mechanics.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor MARSTON.
Prerequisite, Engineering 53.

56. II. STRENGTH OF MATERIALS. — For juniors and seniors. The following topics are considered: elementary stresses and strains; combined stresses; riveted joints; torsion; shear and bending moments; stresses and deflections in beams; statically indeterminate beams; columns; reinforced concrete beams. The physical properties of materials of construction will be discussed during the class period.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor MARSTON.
Prerequisite, Engineering 53.

57. I. HIGHWAY LOCATION. — For juniors and seniors. Theory and practice in the location of highway curves and in the measurement of earth work on construction projects.
1 class hour. 1 2-hour laboratory period, credit, 2.
9:00-9:50 Tu.; 1:00-2:40 W. Assistant Professor MARSTON.
Prerequisite, Engineering 26, or permission of the instructor.

58. II. HIGHWAY CONSTRUCTION. — For juniors and seniors. Types of roads and pavements, methods of construction and maintenance, road materials, special machinery, costs and economic comparisons.
1 class hour. 1 2-hour laboratory period, credit, 2.
Assistant Professor MARSTON.

75. I. HYDRAULICS. — For juniors and seniors. Hydrostatics, which deals with pressure gages, pressures on surfaces and immersed and floating bodies, is first considered. Hydrokinectics, which includes flow through orifices and tubes, over weirs and dams, through pipes and open channels, is dealt with next. Hydro-dynamics, which considers turbines and pumps, will be taken up briefly. Where possible, current practical problems in hydraulics, such as flood control, hydro-electric power development, and erosion control are discussed during the class period.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor MARSTON.
Prerequisites, Physics 26; Mathematics 30.

76. II. WATER SUPPLY. — For juniors and seniors. This course considers the engineering aspects of public water supply systems and includes the following topics: quantity of water required; sources of supply;

ainfall, evaporation and percolation; flow of streams; ground water; uality of water supplies; waterworks construction; intake works; dams; ethods of purification distribution systems.
class hours. Credit, 3.
1:00-11:50 M. W. F. Assistant Professor MARSTON.
rerequisite, Mathematics 75 or permission of the instructor.

81. I. ELEMENTS OF STRUCTURES. — For seniors. The following topics re considered: foundations, beams and girders, columns, reinforced concrete, and framed structures.
class hours. Credit, 3.
1:00-11:50 M. W. F. Assistant Professor MARSTON.
rerequisite, Engineering 56.

DIVISION OF AGRICULTURE.

Professor RICE.

Agronomy.

Professor EISENMENGER, Assistant Professor DICKINSON, Assistant Professor THAYER, Mr. ISGUR, Mr. EVERSON.

The courses in agronomy are designed to give instruction concerning he basic knowledge of the soil and its management, fertilizers and their se, and the principal products of the field. An important objective of our ndergraduate teaching is to give supporting training to groups specializng in other departments. For undergraduates desiring to specialize in gronomy adequate courses are offered, but for those expecting to go nto advanced educational or research work our graduate training is ecommended as preferable.

Elective Courses.

2. II. SOILS. — For freshmen. A general course in soils and soil mangement with special emphasis on their relationship to crop growth. This ourse is designed to give the student who does not intend to go further n soil studies, a broad background in soil science and its direct applicaion to practical field problems. The course itself is presented with the bject of introducing to the student (a) the physical, (b) the chemical, nd (2) the biological properties of the soil and their influence upon the conomic production of crops. The laboratory work is designed with the urpose of furnishing direct evidence and a better understanding of the ecture material. Indicators and principles of soil fertility are stressed nd part of the time is devoted to fertilizer studies and practices.
class hours. 1 2-hour laboratory period, credit, 3.
Mr. ISGUR.

51. I. FIELD CROPS. — For juniors and seniors. A study of methods nd problems of production of field crops important in New England. The successful production of good forage is essential to profitable dairy farming. Special emphasis will be given hay, pasture, and other crops mportant in dairy farming.
class hours. 1 2-hour laboratory period, credit, 3.
:00-9:50 Tu. Th.; 1:55-3:35 Th. Assistant Professor THAYER.

52. II. SOIL UTILIZATION. — For juniors and seniors. A course intended primarily for those not having had other courses in soils. It deals with the nature and properties of soil types, their adaptation to crops, and special problems arising in the management of extreme soil types.
class hours. Credit, 3.
:00-8:50 M. W. F. Mr. ISGUR.

54. II. TURF AND FORAGE GRASSES. — For juniors and seniors. Designed to give a practical working knowledge of fine turf and forage

grasses. The identification of seeds and plants, their ecology and relati value will be emphasized.
2 class hours. 1 2-hour laboratory period, credit,
10:00-10:50 M. F.; 10:00-11:50 W. Assistant Professor DICKINSON.

57. I. THE BIO-PHYSICO-CHEMICAL INTERRELATIONS OF THE SOIL AN PLANT. — For juniors and seniors The important biological, physica and chemical interrelations of the soil and plant are studied. The gener external relations of crop plants to their environments, and their ma reactions to growth factors are given special consideration. The work i this course is especially valuable for those students who may be desirou of entering the civil service in agronomy.
3 class hours. Credit.
Mr. ISGUR.

77. I. CROP IMPROVEMENT. — For seniors. Theory and practice of th improvement of field crops by breeding and selection.
2 class hours. 1 2-hour laboratory period, credit,
Hours by arrangement. Mr. ISGUR.
Prerequisite, Agronomy 51.

78. II. FERTILIZERS. — For seniors; juniors may elect. A study of th source, properties, and behavior of commercial fertilizers and soil amend ments. Attention will be given to such questions as home-mixed versu commercial fertilizers, the use of concentrated materials, and the econom ical purchase of fertilizers.
2 class hours. 1 2-hour laboratory period, credit,
9:00-9:50 Tu. Th.; 1:00-2:40 Tu. Mr. EVERSON.

82. II. SPECIAL PROBLEMS IN AGRONOMY. — For seniors taking majo work in agronomy.
3 2-hour laboratory periods, credit,
Professor EISENMENGER.

RECREATIONAL PLANNING.

50. II. MAINTENANCE AND SERVICE CONSIDERATIONS. — For junior and seniors specializing in Recreational Planning. The course wi acquaint students with the fundamental facts in the maintenance of th various parts of all types of recreational areas, and with all equipmen used and its care. A considerable amount of time will be devoted to servic considerations, such as traffic, drinking fountains, policing, and all ser vices that help to make recreation enjoyable and safe. In conducting thi course there will be much investigative work by the students and writte reports will be frequent. All work will have a distinct, practical objective
2 class hours. 1 2-hour laboratory period, credit, 3.
Assistant Professor DICKINSON.

Animal Husbandry.

Professor RICE, Assistant Professor PARSONS, Assistant Professor FOLEY, Assistant Professor ENSMINGER.

The courses in animal husbandry are designed to give the student a thorough grounding in the scientific, practical, and commercial phases o horse, sheep, swine, beef, and dairy cattle production. The choice of sup porting courses is governed by the student's ultimate objective. Upo completion of the four year's course, three general fields are open to th graduate. First, the practical field comprising the actual production o livestock and its products or the management of livestock farms; second the professional field which embraces college, secondary school, or exten sion teaching, or federal, state, or commercial research; and third, th commercial field comprising all phases of the meat-packing, milk-produc tion, wool or feed industries, including connections with the large com panies, farmers' cooperative associations, or the operation of local plants

Elective Courses.

1. I. Types and Market Classes of Livestock. — For freshmen. his courses is designed to acquaint the student with the broad aspects of ie livestock industry in the United States. It begins with a study of arkets and market demands for cattle, sheep, swine, and horses, and ien considers the selection and operation of the breeding herd. It also rves as a survey course showing the magnitude of the livestock industry nd the importance of livestock and their manifold products in a modern, vilized state. Practice in judging and handling all classes of livestock provided in the laboratory periods.

class hours 1 2-hour laboratory period, credit, 3.
:00-8:50 Tu. Th.; 2:50-4:30 M. F. Professor Rice.

26. II. Breeds of Livestock and Dairy Cattle Judging. — For phomores. This course is designed to acquaint the student with the his- ry, development, characteristics, and present status of all the breeds of ttle, horses, sheep, and swine commercially important in the United tates. Special attention will be paid to the breeds maintained on the llege farm. During April and May trips will be taken on Saturdays to ie leading herds of dairy cattle in New England. The three highest nking students in advanced judging will represent the college in the tercollegiate Dairy Cattle Judging Contest at the Eastern States Ex- osition and the National Dairy Show the following fall.

class hours. 1 2-hour laboratory period, credit, 3.
Assistant Professor Foley.

51. I. The Nutrition of Farm Animals. — For juniors. This course designed to give the student an understanding of the mechanics of igestion, absorption, circulation, respiration, and excretion; the func- ons of proteins, carbohydrates, fats, vitamins, and minerals in body etabolism; the functions of those endocrine glands primarily concerned ith nutrition; the nature and value of the various feed stuffs; and meth- ds of calculating rations in order to meet the requirements of various asses of livestock.

class hours. Credit, 3.
Assistant Professor Ensminger.

52. II. The Breeding and Improvement of Farm Animals. — For niors. This course is planned to acquaint the student with the facts of eproductive physiology, with the facts and theories of modern genetics, nd to show how such knowledge may be utilized for the creation of more eautiful and more efficient animal types.

class hours. Credit, 3.
:00-9:50 M. W. F. Professor Rice.

53. I. Meat and Meat Products. — For juniors. This course intro- uces the student to the opportunities in the packing industry and the ossibilities for farm slaughter in New England. It complements the ourses in beef, sheep, and swine production and advanced fat stock judg- ng. Laboratory practice in slaughtering and dressing cattle, hogs, sheep, nd veal calves is supplied. The resulting carcasses are prepared as whole- ale and retail cuts and the utilization of by-products is given attention.

class hour. 2 2-hour laboratory periods, credit, 3.
:00-1:45 W.; 1:00-2:40 M. F. Assistant Professor Foley.

56. II. Beef and Sheep Production and Livestock Judging. — For niors. This course includes studies of the development of the beef and heep industries, situation and outlook, phases of production, systems of anagement, herd and flock improvement, feeding, management, breed- ng, equipment, and fitting and showing. Practice in judging the various lasses of fat stock and horses is given, and during April and May trips re taken to the leading herds and flocks in New England. The five high- st ranking students in the judging work represent the college in the

Intercollegiate Livestock Judging Contests at the Eastern States Exposition and the International Livestock Exposition the succeeding fall.

2 class hours. 1 4-hour laboratory period, credit, 3.
10:00-10:50 Tu. Th.; 8:00-11:50 S. Assistant Professor ENSMINGER.

73. I. ADVANCED MEAT STUDIES AND JUDGING. — For seniors. This course is designed to impart a knowledge of the fundamental principals involved in judging, buying, and efficiently utilizing meat and meat products. One laboratory per week will be devoted to actual judging in nearby packing plants. The three highest ranking students will be chosen to represent the college at the intercollegiate meat judging contest, International Livestock Show, Chicago, in November.

2 2-hour laboratory periods, credit, 2.
2:50-4:30 Tu. F. Assistant Professor FOLEY.

75. I. HORSE AND SWINE PRODUCTION. — For seniors. This course includes a study of the development of the breeds of draft and light horses and swine, and a study of the economic, genetic, nutritional, and managerial problems concerned in producing these classes of livestock with particular reference to New England conditions. Practice is also given in fitting and showing and in livestock judging.

2 class hours 1 4-hour laboratory period, credit, 3
8:00-8:50 Tu. Th.; 8:00-11:50 S. Assistant Professor ENSMINGER.

78. II. DAIRY CATTLE AND MILK PRODUCTION. — For seniors. This course embraces all phases of dairy cattle production and management. It affords an opportunity to seek the solution to the economic, nutritional genetic, and managerial problems concerned in successful dairying. One period a week will be devoted to talks by outside specialists in the various fields. Laboratory work will consist of a detailed study of methods used on the college farm and opportunities to practice and achieve the various skills necessary to the herdsman or showman.

4 2-hour laboratory periods, credit, 4
8:00-9:50 Tu. Th.; 1:00-2:40 W. F. Assistant Professor FOLEY.

81. I. ANIMAL HUSBANDRY SEMINAR. — For seniors. This is essentially a problem course. Each student will select his own problem in the broad field of animal husbandry, report his progress occasionally to the group, and prepare a final paper covering all phases of the problem.

1 2-hour laboratory period, credit, 1
1:00-2:40 F. Professor RICE.

82. II. ANIMAL HUSBANDRY SEMINAR. — For seniors. Students will prepare original papers and talks on various pertinent topics. Round table discussions of animal husbandry investigational work and practices will be conducted.

1 2-hour laboratory period, credit, 1
Professor RICE

91. I. GENETICS AND EUGENICS. — For juniors and seniors. This course is open to students other than those specializing in animal husbandry, and deals with the general problems concerned in human reproduction and inheritance. The main topics studied will consist of the physiology of reproduction, the physical basis of inheritance, and the mode of transmission of human characteristics. Consideration will also be given to such questions as the causes of variation, the relative importance of genetic and environmental influences, the mechanism of sex determination as well as population trends, sterilization and kindred eugenic problems.

3 class hours. Credit, 3
8:00-8:50 M. W. F. Professor RICE.

Dairy Industry.

Professor FRANDERSEN, Assistant Professor MACK, Assistant Professor LINDQUIST.

The courses in dairy industry are offered to meet the needs of students nterested in the scientific study of handling market milk, and the making)f ice cream, butter, cheese, and other dairy products; agricultural col- ege teaching, and experiment station work; high and secondary school eaching; extension work; research and investigational work.

Elective Courses.

25. I. GENERAL DAIRYING. — For sophomores. A general course, in- roductory to all other courses in dairy industry, and for those who wish o take only one course in dairying to get a general knowledge of the sub- ect. The work covers briefly: a study of milk, its secretion, composition, nd various tests applied thereto; methods of pasteurizing and handling nilk and cream; the use of separators; elements of ice cream, butter, and heese making.

class hours. 1 2-hour laboratory priod, credit 3.
Professor FRANDSEN and Assistant Professor LINDQUIST.

50. II. JUDGING DAIRY PRODUCTS. — For juniors; seniors may elect. A study of market standards and grades of dairy products, with prac- ice in judging milk, ice cream, butter, and cheese. The student learns to ecognize quality in dairy products, to detect specific defects, and to know heir causes and the means of their prevention. A team is chosen from his class to represent the college in dairy products judging contests at he Eastern States Exposition and the National Dairy Industries Ex- osition.

1 2-hour laboratory period, credit, 1.
:00-2:40 F. Assistant Professors MACK and LINDQUIST.

52. II. MARKET MILK. — For juniors; seniors may elect. A study of he various phases of the market milk industry: sanitary production, ransportation, pasteurization and handling in the city plant; marketing, elivery systems, milk and its relation to public health, inspection, milk aws, food value, and advertising. Cultured milk and other milk drinks lso are included. Some milk plants are visited, the cost of the trip not xceeding five dollars.

class hours. 2 2-hour laboratory periods, credit, 4.
Assistant Professor LINDQUIST.

75. I. DAIRY CHEMISTRY. — For juniors and seniors. The various hysical and chemical properties of milk, milk products, and their com- onents are studied. Testing and control methods commonly used com- nercially for milk and dairy products are included; moisture and fat etermination, casein, salt, and acid tests, work with the Majonnier pparatus, and other applied chemical tests are taken up in the laboratory.

class hour. 2 2-hour laboratory periods, credit, 3.
:00-10:50 Tu.; 8:00-9:50 Th. Assistant Professor MACK.

77. I. BUTTER AND CHEESE MAKING. — For juniors and seniors. The rst half of the semester is devoted to butter making, the remainder to heese making, condensed and powdered milks. The various phases of the utter industry studied are: separators and cream separation; pasteur- zation, neutralization, and ripening of cream; preparation of starter cul- ures; churning, marketing, and scoring of butter; creamery manage- ent. The work in cheese making includes Cheddar, cream Neufchâtel, ottage, processed cheeses, etc. The manufacture of condensed and pow- ered milk, and commercial casein is also covered.

class hours. 2 3-hour laboratory periods, credit, 4.
1:00-11:50 W. F.; 1:00-3:35 M. F.
Assistant Professors MACK AND LINDQUIST.

'rerequisite, Dairy 25.

78. **II.** ICE-CREAM MAKING. — For juniors and seniors. The cours includes a study of the principles and practices of ice-cream making. Th effects of such factors as composition, quality, pasteurization, homoger ization, aging, and freezing on the finished product are considere Sherbets, ices, fancy and individual forms, and all flavors of ice cream ar studied. Some time is devoted to refrigeration machinery, delivery equi ment, and merchandising methods as they are related to the industry.
2 class hours. 2 3-hour laboratory periods, credit,
11:00-11:50 W. F.; 1:00-3:35 Tu.; 1:55-4:30 Th.
Assistant Professor MACK.

79. **I.** 80. **II.** SEMINAR. — For students specializing in dairy indu try. The course consists of a study of research done by the experimer stations, also review of foreign literature. Students prepare papers o timely dairy subjects. Frequent addresses are made to the class by visi ing authorities in dairying.
1 class hour. Credit,
11:00-11:50 M. Professor FRANDSEN.

Agricultural Economics and Farm Management.

Professor LINDSEY, Professor BARRETT.

The agricultural economies and farm management curriculum is planne to provide a training not only for those proposing to enter actual far production but also those fields of business closely related to agricultur With the rapid development of business allied to agriculture there h arisen a demand for agriculturally trained men in many sections of t commercial world. Such lines as marketing of milk and other dairy pr ducts, fruit and vegetable distribution, feed and fertilizer manufacturi and marketing, canning and food preservation, agricultural machine development and utilization, and meat packing and distribution are offe ing opportunities for graduates trained in agricultural business. T agricultural division of banks, insurance companies, railroads, and simil organizations have openings for agricultural students of statistical a business training. The fields of research, extension, and teaching, in sta and federal institutions and secondary schools, provide further openin for graduates of agricultural economics and farm mangement.

Elective Courses.

26. **II.** ECONOMICS OF AGRICULTURAL PRODUCTION. — For sophomor The principles of production economics applied to agriculture, speci emphasis being placed upon specialization, combination of the factors production, and diminishing and increasing inputs and outputs.
3 class hours. Credit,
8:00-8:50 M. W. F. Professor BARRETT.

55. **I.** MARKETING FARM PRODUCTS. — For juniors and seniors. N open to students who have taken or are taking Economics 53. An analy of the present system of assembling, transporting, storing, and distribu ing farm products as a basis for intelligent direction of efforts in i creasing the efficiency of marketing methods.
3 class hours. Credit,
9:00-9:50 M. W. F. Professor LINDSEY.

56. **II.** THE FUNDAMENTALS OF COOPERATION. — For juniors and se iors. A study of the principles of organization, management, and ope tion of cooperative associations. Special emphasis is placed upon types organization, methods of formation, financial and operating polici membership relations, sales methods and policies, and public relations.
3 class hours. Credit,
10:00-10:50 M. W. F. Professor LINDSEY.

57. I. Agricultural Credit and Land Appraisal (1939-40). — For juniors and seniors. A study of the development, use, functions, and operations of public and private credit institutions which are available to agriculture. Special emphasis is given to the practical aspects of credit policy and land appraisal. Given in alternate years.
3 class hours. Credit, 3.
Professor Lindsey.

71. I. Agricultural Economic Theory (1938-39). — For juniors and seniors. The course is a comparative and critical study of the significant contributions of the leading economists to the theory of agricultural economics from the time of Adam Smith to the present. Given in alternate years.
3 class hours. Credit, 3.
1:00-11:50 M. W. F. Professor Lindsey.

75. I. Farm Organization. — For seniors. This course analyzes the functions of the farmer as a business proprietor. Some of the problems and principles considered are: choice and combination of farm enterprise, least cost and highest profit, farm and building layout, the economical use of funds, farm credit, adjustments of production and price cycles as affecting farm organization. Records of the organization of actual farms are studied and analyzed.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor Barrett.
Prerequisite, the required freshman and sophomore work in agriculture or horticulture, or the permission of the instructor.

76. II. Farm Operation and Advanced Farm Organization. — For seniors. The first part of this course further develops the principle of opportunity costs, and includes the use of farm records and accounts as a basis for planning and budgeting, "scientific management" as applied to efficient farm technique, and the execution of the plans and policies of the organization. The last part of the semester will be given over to a more specific study of the principles and practices outlined in Course 75, with special reference to their application to selected farms. Field trips are required. The approximate expense for travel is five dollars.
1 class hour. 1 4-hour laboratory period, credit, 3.
10:00-10:50 Th.; 1:00-4:30 M. Professor Barrett.
Prerequisite, Agricultural Economics 75.

79. I. Principles and Methods of Statistics. — For seniors and graduate students; juniors may elect. Methods of collecting, analyzing, interpreting, and presenting statistical information. The application of statistical methods to the fields of agriculture, economics, education, business, and industry is emphasized through practical laboratory problems.
1 class hour. 2 2-hour laboratory periods, credit, 3.
1:00-1:45 W.; 1:00-2:40 M. F. Professor Lindsey.

80. II Advanced Statistics. — For seniors and graduate students. This course deals with the use of statistics in the analysis of economic data with special emphasis upon prices; the use of multiple correlation methods in the study and analysis of prices of agricultural and certain other commodities.
1 class hour. 2 2-hour laboratory periods, credit, 3.
1:00-1:45 W.; 1:00-2:40 M. F. Professor Lindsey.

82. II. Advanced Farm Operation. — For seniors majoring in agriculture; others by permission of instructor. A study of the efficiency of operations on a specific farm. An original semester paper will be required.
3 hours or equivalent. Credit, 3.
Hours by arrangement. Professor Barrett.

89. I. 90. II. SEMINAR. — For seniors majoring in agriculture others by arrangement. Farm management and agricultural economi problems will be considered from the viewpoint of research, extensio and teaching.
1 class hour. Credit,
Hours by arrangement. The DEPARTMENT.

Poultry Husbandry.

Professor PARKHURST, Professor SANCTUARY, Assistant Professor BANTA, Mr. VONDELL.

The department aims to give instruction in the science, art, and prac tices of poultry keeping not only to the men majoring in this departmen but also to students majoring in other departments and desiring support ing courses in poultry husbandry. Our major courses prepare men for th successful operation of commercial poultry farms and marketing project either as owners or managers; for graduate work, teaching, extension an investigational work.

Elective Courses.

25. I. POULTRY JUDGING. — For sophomores. A study of the origi and evolution of our standard breeds and varieties of domestic fowl judging production quality, using trapnested birds; judging exhibitio quality by score card and comparison. One or more poultry farms, a egg-laying contest, and a poultry show will be visited. Poultry judgin teams competing in the intercollegiate contest each January are traine in this course.
1 class hour. 2 2-hour laboratory periods, credit, 3
Assistant Professor BANTA.

51. I. POULTRY FEEDS AND FEEDING. — For juniors; seniors may elect A study of the common feeds and the scientific principles underlying th field of nutrition. Recent experimental work and current feeding prob lems will receive special consideration. For observational practice an accumulation of original data, the management of a group of birds wil be required for a period of a few weeks.
2 class hours. 1 2-hour laboratory period, credit, 3
11:00-11:50 M. F.; 2 hours by arrangement. Professor PARKHURST.

52. II. INCUBATION AND BROODING. — For juniors; seniors may elect A study of the fundamental principles underlying incubation and brooding practices. The science of physics and general biology is applied to th study of incubation and brooding processes. Students become thoroughly acquainted with modern incubation and brooding equipment through de tailed study and operation of typical incubators and brooders. Present-da problems are considered and some are investigated as part of the clas work.
1 class hour. 2 2-hour laboratory periods, credit, 3
Hours by arrangement. Professor SANCTUARY.

54. II. POULTRY HOUSING AND SANITATION. — For juniors; senior may elect. A consideration of the biological needs of poultry from th standpoint of housing, and the economic principles governing designing and construction of poultry houses and equipment for poultry farm build ings. The course also embodies a study of the principles of poultry sani tation, including external parasites and the insecticidal agents for thei control.
1 class hour. 1 2-hour laboratory period, credit, 3
Hours by arrangement. Professor SANCTUARY.

75. I. MARKET POULTRY AND POULTRY PRODUCTS.. — For seniors. A study of market classes of poultry and eggs; preparation of poultry pro ducts for market; requirements of different markets; methods of mar keting, involving a study of distribution; finances and business organiza

ions; cold storage and transportation; advertising, prices, and food alues. Laboratory exercises in candling, packing, killing, dressing, and imilar operations to make the above named factors more concrete. Students are required to fatten pens of chickens, keeping accurate data f the gains in weight and quality, also the costs of feed and labor, and esultant profit or loss. When possible, a short trip to Springfield is rranged to study the handling of poultry products in the local market.

class hour. 1 2-hour laboratory period, credit, 2.

Mr. VONDELL.

77. I. POULTRY BREEDING. — For seniors. Methods of selection and mprovement of poultry are developed through the study of the principles f heredity. Most of the course centers around the progeny test and pedi- ree method of breeding. Students taking this course participate in the ollege plant selection in pedigree work. Three breeds of poultry, each edigreed for from seven to twenty years, furnish practice materials. A trip to some college or institution doing experimental work in breeding s required of students taking this course.

class hours. 1 2-hour laboratory period, credit, 3.

Professors SANCTUARY and PARKHURST.

78. II. POULTRY FARM ORGANIZATION. — For seniors. This course mbodies the application of economic and business principles to poultry arming. The place and importance of the various branches of well- rganized poultry farms and their relation to each other receive special onsideration; also the study of surveys and production costs. A trip overing three or more days will be made to representative successful oultry farms. The expense per student is approximately fifteen dollars. his trip is required of each student taking the course for credit.

class hour. 1 2-hour laboratory period, credit, 2.

Hours by arrangement. Professor PARKHURST.

Prerequisite, Poultry 77.

80. II. FARM POULTRY. — For seniors; juniors may elect. For those tudents who desire a knowledge of poultry husbandry but who cannot levote more than one term to the subject; it is not intended for students pecializing in poultry, and such students are admitted only by special ermission. Emphasis is placed on the farm flock and its economic man- gement. Housing, culling, feeding, hatching, rearing, production, mar- eting, disease control, record keeping and flock management receive pecial consideration.

class hours. 1 2-hour laboratory period, credit, 3.

:00-8:50 M. W.; 2 hours by arrangement. Assistant Professor BANTA.

81. I. 82. II. POULTRY PROBLEMS. — For seniors only. This course onsists of individual problems chosen by the students under guidance of he department. The work is of an advanced nature, supplementing that f the regular poultry curriculum. Copy of project outline, indicating the umber of credits, must be filed with the department and with the Dean t the opening of the semester. Two hours are required in the second emester. Two additional hours may be elected in the first or second emesters. Hours by arrangement.

Credit, 2 to 4.

Professor PARKHURST.

DIVISION OF HOME ECONOMICS.

Professor SKINNER.

Home Economics.

Professor SKINNER, Professor MITCHELL, Associate Professor KNOWLTON, Assistant Professor BRIGGS, Assistant Professor COOLIDGE, Mrs. COOK.

The home economics courses offered are planned to meet the needs of (1) those students who are interested in education for homemaking as an

integral part of the general education of women; (2) those who are interested in professional or vocational work in which an understanding of home economics is fundamental; (3) those who are interested in preparing for home economics extension service, both junior and adult; (4) those who wish to enter a graduate school leading to professional work. Other departments offer courses planned especially for students in home economics, as follows: Household Equipment, also House Planning and Construction in the Department of Agricultural Engineering; General Design in the Department of Landscape Gardening; Food Preservation in the Department of Horticultural Manufactures; and Amateur Floriculture in the Department of Floriculture.

Elective Courses.

1. I. INTRODUCTION TO HOME ECONOMICS. — For freshmen. A study of women in the modern world and the share which women have had in social progress, in order that each student may recognize the importance of her relationships to her family and community group.
3 class hours. Credit, 3
Professor SKINNER.

2. II. CLOTHING SELECTION. — For freshmen. A study of the principles of clothing selection in order to assist each student to choose satisfactorily line, color, and texture. Fundamentals of construction for cotton and linen.
1 class hour. 2 2-hour laboratory periods, credit, 3
Assistant Professor BRIGGS.

26. II. TEXTILES. — For sophomores. A study of fibres, yarns, and fabrics with the aim of developing good judgment in the buying and using of clothing and house furnishing materials.
1 class hour. 2 2-hour laboratory periods, credit, 3
Assistant Professor BRIGGS.

30. II. FOODS. — For sophomores. A study including fundamental principles and comparative methods of food preparation with emphasis on the nutritional and economic aspects of foods.
1 class hour. 2 2-hour laboratory periods, credit, 3
Associate Professor KNOWLTON.

31. I. APPLIED DESIGN. — For sophomores. Applications of the principles of design are worked out in specific problems, using various media. Much opportunity is allowed for individual expression. The estimated cost of materials used is five dollars. Students provide all materials subject to the approval of the instructor.
3 2-hour laboratory periods, credit, 3
Assistant Professor BRIGGS.
Prerequisite, Drawing 31, previously or concurrently.

51. I. FOODS. — For juniors. Meal-planning and serving with emphasis on well-balanced meals as to nutritive value, and economy in expenditure of money, time, and labor. Further study of food principles.
2 class hours. 2 2-hour laboratory periods, credit, 3
Prerequisite, Home Economics 30.
Associate Professor KNOWLTON.

52. II. NUTRITION AND DIETETICS. — For juniors. A study of food needs of the body under varying conditions of size, activity, age, and health, and the value of different foods in contributing to these needs. Special emphasis is placed on the relationship of the nutritive value of food to its cost.
2 class hours. 2 2-hour laboratory periods, credit, 4
Associate Professor KNOWLTON.
Prerequisite, Home Economics 30.

61. I. Clothing Selection and Construction. — For juniors. A study of art principles as they apply to clothing design. Principles of construction are given through the use of commercial patterns and flat pattern work in the making of garments. Students provide all materials subject to the approval of the instructor.
class hour. 2 2-hour laboratory periods, credit, 3.
Assistant Professor Briggs.

62. II. Home Furnishing. — For juniors. A study of the fundamental principles which underlie the successful planning and furnishing of a satisfying home. Many applications of these principles are worked out in practical problems.
class hour. 2 2-hour laboratory periods, credit, 3.
Assistant Professor Briggs.

75. I. Economics of the Household. — For juniors and seniors. A study of personal and family standards of living in the modern home, the economic relations of the household, and the use of time, energy, and money as a means to influence the home situation.
class hours. Credit, 3.
8:00-8:50 M. W. F. Assistant Professor Coolidge.

77. I. II. Home Management Practice. — For seniors. This course provides an opportunity for a student to assume responsibilities involved in managing a home.
Credit, 4.
Assistant Professor Coolidge.

81. I. Methods of Teaching Home Economics. — For seniors, by arrangement with the head of the division. A study of educational problems as applied to the teaching of home economics in junior and senior high schools. This course gives credit toward state certification. A few required trips, estimated cost three dollars.
class hours. 1 2-hour laboratory period, credit, 3.
Associate Professor Knowlton.

83. I. 84. II. Problems in Home Economics. — For seniors by arrangement with the Head of the Division. An intensive application of home economics to special problems. For students particularly interested in the teaching of home economics, there may be an opportunity for observation and practice teaching under supervision; under these circumstances, Home Economics 81 is prerequisite.
class hours. 1 2-hour laboratory period, credit, 3.
The Department.

86. II. Child Development. — For seniors. A study of the growth and development of the child, the care of children at various ages, treatment in behavior problems, and the influence of environment in shaping personality. Field trips at an estimated cost of two dollars.
class hours. Credit, 3.
Assistant Professor Coolidge.

87. I. Advanced Clothing Problems. — For seniors. Costume designing and modeling give opportunity for experimentation in designing. Tailoring is emphasized. Students provide all materials subject to the approval of the instructor.
class hour. 2 2-hour laboratory periods, credit, 3.
9:00-10:50 Th.; 2:50-4:30 Tu. Th. Assistant Professor Briggs.

89. I. Diet Therapy. — For seniors. This course offers a brief outline of the causes, symptoms, and general treatment of the various diseases in which the nutritional condition of the patient has significance. The course includes the dietetic treatment and control of gastro-intestinal disorders, obesity, cardo-vascular-renal diseases, anemia, fevers, diabetes,

food allergy and the deficiency diseases. Field trips are planned to tl dietetic departments of nearby hospitals.
3 class hours. Credit,
11:00-11:50 M. W. F. Professor MITCHELL and Mrs. COOK.
Prerequisites, Home Economics 52; Chemistry 79.

90. II. SEMINAR. — For seniors and graduate students. Further stuc of current scientific literature related to advanced nutrition.
1 class hour. Credit,
The DEPARTMENT.

91. I. 92. II. INSTITUTIONAL FOODS AND MANAGEMENT. — For qua fied seniors interested in institutional work. This includes a study of tl principles of organization, personnel management, the administration the food department, food costs, operating expenses, and the special fun tion and duties of the dietitian. Laboratory work will be at the Colle Dining Hall and in various other institutions in the vicinity. It is expect that students will enroll for the work of both semesters. Enrollment limited. Students wishing to qualify for administrative institutional wo should take Economics 81.
1 class hour. 2 2-hour laboratory periods, credit,
Mrs. COOK.

DIVISION OF HORTICULTURE.

Professor VAN METER.

Floriculture.

Professor THAYER, Assistant Professor HUBBARD, Mr. ROSS.

The courses are intended to give students a general knowledge of t various fields of floriculture, greenhouse design, construction, heating a management, methods of culture and uses of florists' crops (under gla and outdoors), floral decoration and arrangement, and the marketing plants and flowers. The department aims primarily to train students that they may take up (1) various phases of commercial floriculture, (positions in nursery establishments, (3) the management of conserv tories, (4) private estate work, (5) positions in professional work.

Elective Courses.

26. II. GARDEN MATERIALS. — For sophomores; juniors and seno may elect. A study of the annuals, biennials, herbaceous perennials, bull bedding plants, and roses that are valuable for use in floricultural or lan scape gardening work. Methods of propagation, culture, and uses of t various plants are considered; identification of materials, lectures, a signed readings, and reports.
2 class hours. 1 2-hour laboratory period, credit,
11:00-11:50 M. F.; 2:50-4:30 M. Professor THAYER and Mr. ROSS.

51. I. GREENHOUSE MANAGEMENT. — For juniors; seniors may ele This course is intended to familiarize students with the methods a principles involved in the management of greenhouses and greenhou crops; history and development of the floricultural industry; preparati of soils; fertilizers; potting; watering; ventilation; control of insects a diseases; methods of plant propagation; forcing of plants. At some ti during the semester the members of the class will be required to take one-day trip to visit large commercial establishments at an approxim expense of five dollars. Lectures, assigned readings, reports, and labo tory practice.
2 class hours. 1 2-hour laboratory period, credit,
9:00-9:50 M. F.; 2:50-4:30 F. Professor THAYER.

52. II. Floral Arrangement. — For juniors; seniors may elect. A study of the principles involving the arrangement and use of cut flowers and plants; funeral designs, basket and vase arrangements, table decorations, home, church, and other interior decorations. A study of color and color harmony as applied to such work. Lectures, assigned readings, reports and laboratory practice. This course is limited to ten students, preference being given to major students in Floriculture and Landscape Architecture.
1 class hour. 2 2-hour laboratory periods, credit, 3.
8:00-8:50 Thu.; 1:00-2:40 M. F. Professor Thayer.

54. II. Greenhouse Construction and Heating. — For juniors; seniors may elect. The location, types, arrangement, construction, cost, equipment, heating, and ventilation of greenhouse structures; the drawing of plans and study of specifications. Special emphasis laid on heating problems. Lectures, assigned readings, and problems.
2 class hours. 1 2-hour laboratory period, credit, 3.
8:00-9:50 M. F.; 2:50-4:30 F. Professor Thayer.

58. II. Amateur Floriculture. — This course is intended primarily for major students in the Division of Home Economics and for other women students. Three phases of floriculture will be considered: (1) the arrangement and use of cut flowers for decorative purposes in the home and elsewhere, (2) house plants, methods of propagation, (3) garden flowers and their uses on the home grounds.
2 class hours. 1 2-hour laboratory period, credit, 3.
11:00-11:50 Tu.; 1:00-1:45 Th.; Sect. 1, 1:00-2:40 W., Sect II, 1:55-3:35 Th. Professor Thayer and Mr. Ross.

75. I. 76. II. Commercial Floriculture. — For seniors. A detailed study of the cultural methods for the important commercial cut-flower crops and potted plants. The marketing of flowers and plants, including the management of wholesale markets and retail stores, a study of systems of record keeping, cost analysis, inventory methods, and other phases of this important part of the floricultural industry. Trips may be taken to nearby commercial establishments. The lectures are supplemented with textbooks, assigned readings and problems.
2 class hours. 1 2-hour laboratory period, credit, 3.
8:00-9:50 Tu. Th.; 1:00-2:40 Tu. Assistant Professor Hubbard.
Prerequisite, Floriculture 51.

79. I. Conservatory Plants. (1938-39). — Alternates with Course 81 for students specializing in floriculture. For juniors and seniors. A study of the foliage and flowering plants used in conservatory work; methods of propagation; assigned readings, reports, and identification of materials.
1 class hour. 1 2-hour laboratory period, credit, 2.
1:00-1:45 W.; 1:00-2:40 F. Professor Thayer.

81. I. Herbaceous Gardens and Borders. — Alternates with Course 79 for students specializing in floriculture; given annually for students specializing in landscape architecture. For juniors and seniors. This course is a continuation of Course 26 with emphasis on the uses of herbaceous materials in various types of plantings. Lectures, assigned readings, planning of borders and gardens.
1 class hour. 1 4-hour laboratory period, credit, 3.
9:00-10:50 Th.; 1:00 4:30 M. Assistant Professor Hubbard.
Prerequisite, Floriculture 26 .

82. II. Seminar. — For seniors specializing in floriculture. Presentation and discussion of research work in floriculture and other related fields, reports on assignments by individual members of the class, and the

preparation of a thesis dealing with an assigned subject. Seminars ar conducted weekly.

1 class hour. 4 laboratory hours, credit, 3
Professor THAYER.

Forestry.

Professor HOLDSWORTH, Professor TRIPPENSEE, Assistant Professor RICH, Mr. CURTIS.

The courses in forestry are designed for students who desire a know edge of the management, regulation and improvement of woodlands c moderate area. They are further intended to develop the place of fores cultivation in land utilization and to be explanatory of the general field c forestry for those who plan to become students in graduate schools c forestry.

The courses in Wildlife Management are designed for students wh desire a knowledge of the basic principles of wildlife conservation. Wilc life is a natural resource that is economically conservable and is subjec to increase and regulation through scientific management and prope land use. These courses are open to students who have acquired a suitabl background of the sciences basic to wildlife management. Before schedu ing these courses the student should consult the Professor of Wildlif Management.

Elective Courses.

55. I. THE MANAGEMENT, PROTECTION AND USE OF WOODLANDS. — Fo juniors and seniors. Methods of determining the volume and value of th forest growing stock; the determination of growth and yield; the prin ciples of forest regulation and sustained yield; forest protection; fores development and maintenance. The course is presented with special em phasis on the application of the principles of forestry to New Englan conditions. Problems in applied forestry are carried out on the Mour Toby Demonstration Forest. Text and assigned readings.

1 class hour. 1 4-hour laboratory and field period, credit, 3
Professor HOLDSWORTH.

56. II. THE PRINCIPLES OF SILVICULTURE AND WOOD PRODUCTION. — For juniors and seniors. The nature of a forest; factors influencing an controlling the growth and development of forest trees and stands; fores effects on site conditions; methods of forest reproduction through silvicu tural practice; intermediate cuttings; choice of species for forest use supplementary seeding and planting; forest sanitation and its relation t silviculture. The field work in applied forestry is conducted principally o the Mount Toby Demonstration Forest. Visits of inspection are made t certain accessible forests which have been under scientific managemer for many years.

1 class hour. 1 4-hour laboratory and field period, credit, 3
Professor HOLDSWORTH.

58. II. FOREST ECONOMICS AND POLICY. — For juniors and senior The growth and development of forestry from an historic viewpoint; th forest as a natural resource and its place in our economic life; our pas and present forest resources; Federal and State forest organization private forestry; the development of a National Forest Policy. A semeste paper, the subject to be selected by the student after conference with th instructor, will be required.

3 class hours. Credit, 3
11:00-11:50 M. W. F. Professor HOLDSWORTH.

65. I. PRINCIPLES OF WILDLIFE CONSERVATION. — For juniors. This designed as an orientation course for any student in the College wh wishes to get a broad view of the subject. It will cover a general review c the history of the administration of wild life resources as well as an intr

uction to the various biological and economic and legal problems involved the handling of wildlife. A semester paper on some present wildlife roblem will be required.
class hours. Credit, 3.
:00-10:50 M. W. F. Professor TRIPPENSEE.

66. II. INTRODUCTION TO WILDLIFE MANAGEMENT. — For juniors. This urse is designed for students interested in the profession of forestry d wildlife management. It will deal with the vertebrate fauna of the rest in relation to its life requirements, characteristics, and ecological lationships. The course will also deal with problems involved with the oduction and utilization of forest animal resources in connection with e administration of the forest.
class hour. 1 4-hour laboratory period, credit, 3.
:00-1:45 W.; 1:00-4:30 M. Professor TRIPPENSEE.

75. I. FOREST UTILIZATION. — For seniors. The harvesting of stand-g timber, its conversion into logs and other wanted forms of forest oducts, its extraction from the forest, its manufacture, marketing, and stribution. Emphasis is placed on economic factors of the lumber indus-y, as supply and demand, cost of production, trends in use, benefits of andardization, and the activities of lumber trade associations. The urse is arranged with special reference to the forest utilization prob-ms of the Northeastern forest region. Individual problems are assigned.
class hours. Credit, 3.
:00-8:50 Tu. Th. S. Assistant Professor RICH.
erequisite, Forestry 55 or 56 or permission of the instructor.

Horticultural Manufactures.

Professor CHENOWETH, Assistant Professor CLAGUE, Mr. MACLINN.

The courses in Horticultural Manufactures (Food Preservation) have en planned to give the student (1) training in food preservation suf-ient to meet the needs of a general education, and (2) training for tech-al work in the food industries including business, research, and aching.

Students who desire the elementary training only as given in (1) above ll restrict their work to the first year courses and they will not be quired to offer prerequisites other than the required general courses in te sciences. Students who desire to make Horticultural Manufactures eir major specialized subject will be expected to take the full two years' rk as outlined, and should consult with the department as to required urses in chemistry and bacteriology.

Elective Courses.

51. I. FRUIT AND VEGETABLE PRODUCTS. — For juniors; seniors may ect. This course together with Course 52 gives the student a general ementary knowledge of the science and practice of food preservation. inciples and theories of the various methods of food manufacture are te basis for classroom exercises. The laboratory work during the first mester deals largely with the preservation of the autumn fruits and getables, small fruit products, freezing, and dehydration.
lass hour. 2 2-hour laboratory periods, credit, 3.
:00-8:50 Tu.; Sect 1, 1:00-2:40 Tu., 1:55-3:35 Th.; Sect. II, 1:00-:40 W., 8:00-9:50 S.
Professor CHENOWETH and Assistant Professor CLAGUE.

52. II. MISCELLANEOUS PRODUCTS. — For juniors; seniors may elect. his is a continuation of Course 51. The laboratory work includes pickles d pickle products, maple products, citrus products, fruit syrups, soups,

condiments, and the canning of meats, poultry, and the spring vegeta
1 class hour. 2 2-hour laboratory periods, credi
8:00-8:50 Tu.; Sect 1, 1:00-2:40 Tu., 1:55-3:35 Th.; Sect. II, 1
2:40 W., 8:00-9:50 S.
Professor CHENOWETH and Assistant Professor CLAGU
Prerequisite, Horticultural Manufactures 51.

61. I. COMMERCIAL PRACTICES. — For seniors who specialize in h
cultural manufactures. A survey of commercial practices in the m
facture and preservation of food products. This will involve a stud
equipment, factory arrangement, sanitation, and government regulat
the operation of types of commercial equipment in quantity produc
1 class hour. 2 2-hour laboratory periods, credi
Hours by arrangement. Assistant Professor CLAGU
Prerequisites, Horticultural Manufactures 51 and 52.

62. II. FOOD PRESERVATION PROBLEMS. — For seniors who speci
in horticultural manufactures. This is a continuation of Course 61.
class exercises will deal largely with a survey study of the sources of
materials, commercial methods of manufacture, packing and distribu
of the more common foods, also a study of the more important contr
tions of research. Laboratory work will include the formation of rese
projects, interpretation of research data. The use of preservatives,
simple analysis of foods and the commercial practices as applied to pre
vation of such materials as are available: fish, meats, poultry, and sp
vegetables.
1 class hour. 2 2-hour laboratory periods, credi
Hours by arrangement. Assistant Professor CLAGU
Prerequisite, Horticultural Manufactures, 61.

71. I. 72. II. SEMINAR.— For seniors who specialize in horticult
manufactures. Two seminar sessions are held each week.
2 class hours. Credi
Hours by arrangement. The DEPARTMEN

75. I. FOOD PRESERVATION. — For seniors and graduate students.
open to students who have credit for Horticultural Manufactures 51,
or 81. This is a general course in food preservation and intended only
those who desire a broad general knowledge of the subject because o
cultural or practical value.
1 class hour. 2 2-hour laboratory periods, credi
8:00-8:50 Th.; 1:00-2:40 M. F. Mr. MACLIN

81. I. HOME FOOD PRESERVATION. — For junior women; seniors
graduate students may elect. This course covers the general field of
preservation as applied to the home. A textbook is used as a basis
classroom exercises. Laboratory work deals with the canning of fr
vegetables, meats and poultry; the manufacture of food products inc
ing jams, jellies, conserves, marmalades, pickles, fruit butters, etc.
emphasis in both class and laboratory is placed on scientific, econom
practices for home food preservation.
1 class hour. 2 2-hour laboratory periods, credi
10:00-10:50 Tu., 2:50-4:30 M. F.
Professor CHENOWETH and Mr. MACLIN

82. II. SPECIAL PRODUCTS. — For seniors and graduate students.
materials offered in this course are as follows: the home manufactur
fruit preserves, candied and glacéd fruits, fruit pastes, confecti
candies, and other specialties. Approximately one-half the semeste
devoted to elementary work in candy making.
2 2-hour laboratory periods, credi
Sect. I, 1:00-2:40 M. F.; Sect. II, 2:50-4:30 M. F.
Professor CHENOWETH and Assistant Professor CLAGU

91. I. EXAMINATION OF FOOD PRODUCTS. — For seniors and graduate udents. Laboratory studies on the grading of foods, examination of ods for adulteration; testing accessory products for quality; and de- rmining the causes of spoilage or deterioration in processed food pro- cts. Physical, chemical, microbiological and microscopical methods will employed.

2 2-hour laboratory periods, credit, 2.
Assistant Professor CLAGUE.

Landscape Architecture.

ofessor WAUGH, Professor HARRISON, Professor BLUNDELL, Mr. ROBERTSON, Mr. TRAMPOSCH.

The instruction in this department is aimed at two objectives: first, the ntribution to general education; second, the preparation of men for the ofessional practice of landscape architecture. The former objective ems important from the fact that landscape architecture offers an excel- nt opportunity for the practical discussion of the principles underlying the fine arts. In the professional courses students are prepared, as well time permits, to begin work in landscape architecture which leads rough field experience or post-graduate study to permanent establish- ent in that profession.

DRAWING.

Elective Courses.

25. I. FREE-HAND DRAWING. — For students specializing in landscape chitecture; others by special arrangement. Lettering; cast drawings; ter color rendering for landscape architectural plans; pen-and-ink awing; elementary design.

3 2-hour laboratory periods, credit, 3.
Mr. ROBERTSON.

26. II. LANDSCAPE AND ARCHITECTURAL DRAFTING. — For students ecializing in landscape architecture; others by special arrangement. ements of drawing for landscape drafting—symbols; geometric shapes; awing of plans, elevations, and sections; architectural shades and shad- s; perspective drawing.

3 2-hour laboratory periods, credit, 3.
Mr. ROBERTSON.

31. I. ELEMENTARY DESIGN. — For sophomore women. Elementary inciples of design, with application to costume design, interior decora- n, etc.

3 2-hour laboratory periods, credit, 3.
Mr. ROBERTSON.

LANDSCAPE ARCHITECTURE.

Elective Courses.

51. I. TOPOGRAPHY AND MAPPING. — For juniors. Reconnaissance, lo- ion, topography, and mapping, covering the special data needed and the thods used in landscape architecture. Must be followed by Course 52.

3 2-hour laboratory periods, credit, 3.
00-2:40 M. W. F. Professor HARRISON.
erequisites, Drawing 25 and 26.

52. II. ELEMENTS OF LANDSCAPE ARCHITECTURE. — For juniors. En- neering details; drive design, grade design, drainage, play areas, etc. dy of selected designs, examination of completed works, and, when ssible, those under construction; field notes or written reports.

3 2-hour laboratory periods, credit, 3.
00-2:40 M. W. F. Professor HARRISON.
erequisites, Landscape Architecture 51 and either Horticulture 51 or advanced Mathematics.

54. II. GARDEN DESIGN. — For juniors. Fundamental principles o design with application to simple problems in design of gardens and smal home grounds.

3 2-hour laboratory periods, credit, 3
1:00-2:40 Tu., 1:55-3:35 Th., 10:00-11:50 S. Professor WAUGH.
Prerequisites, Landscape Architecture 51 and concurrently 52.

56. II. SUMMARY COURSE. — For juniors and seniors. A technical bu non-professional course designed to give a condensed statement witl practical field and laboratory instruction in the fundamental principles o landscape architecture along with a study of the commoner problems a met by professional workers in allied fields (foresters, florists, recreatio executives, et al.). Subjects treated are the making and reading of map and plans (as required) in landscape architecture; simple problems i grading; the design of roads, walks, and trails; elements of design— home grounds, school grounds, playgrounds, campgrounds, etc.; plan materials; the significance of the natural landscape, its conservation restoration, improvement, and utilization.
1 class hour. 2 2-hour laboratory periods, credit, 3
Professor WAUGH.

75. I. THEORY OF LANDSCAPE ART. — For seniors and graduates. Th general theory and application of landscape study, including an examina tion of the principles underlying all the fine arts with special reference t art appreciation.
3 class hours. Credit, 3
9:00-9:50 M. W. F. Professor WAUGH.

76. II. CIVIC ART. — For seniors. The principles and applications o modern civic art, including land subdivision, city planning, city improve ment, rural improvement, and regional planning.

3 2-hour laboratory periods, credit, 3
2:50-4:30 M. F., 1:00-2:40 W. ———.
Prerequisites, Landscape Architecture 51, 52.

78. II. HISTORY OF ART. — For juniors and seniors. An historica appreciative survey of art from earliest times to the present day, wit special reference to the relations of the fine arts to the problems of dail life.
3 class hours. Credit, 3
11:00-11:50 M. W. F. Mr. ROBERTSON.

79. I. CONSTRUCTION AND MAINTENANCE (1939-40). — Alternate with Course 83. For juniors and seniors. Detailed instruction in stakin out work; methods of construction and planting; organization, reporting accounting, estimating, etc.
3 class hours. Credit, 3
10:00-10:50 M. W. F. Professor HARRISON.

80. II. LITERATURE OF LANDSCAPE ARCHITECTURE. — For seniors only The literature of landscape architecture, gardening, plants, forestry an nature appreciation. Requires extensive reading, oral and written report and the preparation of assigned theses and bibliographies.
1 lecture hours, 1 conference period. Credit, 2
8:00-8:50 Tu.; 8:00-8:50 or 9:00-9:50 Th. Professor WAUGH.

81. I. ADVANCED DESIGN. — For seniors. Grading and planting plans garden design and planting.

3 2-hour laboratory periods, credit, 3
1:00-2:40 Tu., 1:55-3:35 Th., 10:00-11:50 S. Professor WAUGH.
Prerequisites, Landscape Architecture 51, 52, and 54.

82. II. Advanced Design. — For seniors. A series of problems in the design of estates, parks, and small properties.
3 2-hour labooratory periods, credit, 3.
1:00-2:40 Tu., 1:55-3:35 Th., 8:00-9:50 S. Professor Harrison.
Prerequisite, Landscape Architecture 81.

83. I. Architecture (1938-39). Alternates with Course 79. For juniors and seniors. The history of architectural development, the different historic types, with special reference to the underlying principles of construction and their relation to landscape design. Illustrated lectures, field trips, the study of details, preparation of plates.
3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor Harrison.

84. II. Sketching. — For juniors and seniors. The use and development of technique in water color, pencil, pen and ink sketching of outdoor and indoor subjects.
2 2-hour laboratory periods, credit, 2.
1:00-2:40 M. F. Mr. Robertson.

Horticulture.

Elective Courses.

1. I. Plant Propagation. — For freshmen. This course serves as an introduction to the field of horticulture, emphasizing the methods and principles involved in the propagation of horticultural plants.
2 class hours. 1 2-hour laboratory period, credit, 3.
Professor Thayer and Mr. Tramposch.

26. II. Plant Materials. — For sophomores. Detailed study of deciduous and evergreen trees, with special reference to the form and character of mature trees, means of identification, natural associations, and uses of the various types of trees in landscape work.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Professor Blundell.

51. I. Plant Materials. — For juniors; seniors may elect. Detailed study of shrubs and woody vines, and their identification, with especial emphasis given to their adaptability to the various landscape uses, methods of handling, and care.
1 class hour. 2 2-hour laboratory periods, credit, 3.
Professor Blundell.
Prerequisite, Horticulture 26.

Olericulture.

Professor Snyder, Assistant Professor Tuttle, Mr. Lachman.

The courses in olericulture offer a comprehensive training in the scientific and commercial principles related to the culture and marketing of vegetables. The specific objects of the courses are to train students for (1) the various commercial branches of production and marketing, and (2) the professional fields of research, extension, and teaching.

Elective Courses.

25. I. General Olericulture. — For sophomores; juniors and seniors may elect. A study of the factors affecting the growth of plants which are essential to a basic understanding of the cultural requirements of vegetable crops.
3 class hours. 1 2-hour laboratory period, credit, 3.
Professor Snyder and Mr. Lachman.

51. I. Olericulture. — For juniors; seniors may elect. A critical study of the water and nutrient requirement of vegetable plants as applied

to irrigation, soils and their preparation, manures, fertilizers, lime, green manures and crop residues.
3 class hours. Credit, 3.
Hours by arrangement. Assistant Professor TUTTLE.

52. II. OLERICULTURE. — For juniors; seniors may elect. A study of certain environmental factors which influence the culture of vegetables as applied to actual commercial practices.
3 class hours. Credit, 3.
Hours by arrangement. Professor SNYDER.

74 II. MARKETING PRACTICES (1939-40). — For juniors and seniors. A study of the various factors concerned with the harvesting and marketing of vegetable produce, including grades, packs, packages, brands, and federal and state inspection requirements. The Department of Agricultural Economics will present material covering transportation, markets and marketing principles. Given in alternate years.
3 class hours. Credit, 3
Hours by arrangement. Professors SNYDER and LINDSEY.

75. I. SYSTEMATIC OLERICULTURE. — For seniors. A detailed study of variety identification; nomenclature and classification; history, variety improvement and seed sources; judging and exhibiting.
1 class hour. 2 2-hour laboratory periods, credit, 3
Hours by arrangement. Professor SNYDER.

76. II. GREENHOUSE CROPS AND PLANT GROWING (1938-39.). — For juniors and seniors. A study of the culture of greenhouse crops including cucumbers, tomatoes, lettuce, rhubarb, and mushrooms; the growing of seedling plants both under glass and in the open for local retail or wholesale business. Given in alternate years.
2 class hours. 1 2-hour laboratory period, credit, 3
Hours by arrangement. Professor SNYDER.

78. II. COMMERCIAL OLERICULTURE. — For seniors. A study of the problems in the commercial production of vegetables: general culture fertilizers and manures, machinery, labor, harvesting, and marketing. One or two trips to important markets and truck growing sections are required. Twenty-five dollars will cover the cost of these trips.
2 class hours. 1 2-hour laboratory period, credit, 3
Hours by arrangement. Professor SNYDER.

81. I. 82. II. SEMINAR. — For seniors. Advanced study of problems relating to vegetable production. Each student will be assigned problems which must be reported to the seminar for discussion.
1 class hour. Credit, 1
Hours by arrangement. The DEPARTMENT.

Pomology.

Professor VAN METER, Professor FRENCH, Assistant Professor ROBERTS.

The pomology courses offer a comprehensive training in the scientific and commercial principles concerned in the growing and marketing of apples, pears, peaches, plums, cherries, and small fruits. Major fields open to graduates include; (1) practical work in connection with the operation of a fruit farm; (2) teaching in college, high school or secondary school of agriculture; (3) extension work in county, state, or nation; (4) research work with state or federal connections; and (5) commercial work in connection with the manufacture and sale of such supplies as machinery, packages, and spraying and dusting materials. Supporting courses in science are required. Since these vary with the objective of the student that objective should be determined as early as possible.

Elective Courses.

26. II. SMALL FRUITS. — For sophomores; juniors and seniors may elect. A study of the growing of raspberries, blackberries, strawberries, currants, blueberries, and grapes, dealing with such questions as varieties, selecting a site for the plantation, soils, fertilizers, pruning, harvesting, and marketing.

2 class hours. 1 2-hour laboratory period, credit, 3.
Professor FRENCH.

53. I. GENERAL POMOLOGY. — For juniors; seniors may elect. A study of the most improved practices in fruit production and marketing, including such questions as the selection of orchard sites and soils, laying out and setting the orchard, the structure and growth of fruit plants; the bearing habits, pruning and training of fruits; fertilizers, pollination, and winter injury.

2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 Tu. Th.; 2:50-4:30 F. Assistant Professor ROBERTS.

56. II. SPRAYING. — For juniors; seniors may elect. This course is designed especially to familiarize the student with details of pest control in the orchard. It involves a study of (a) spraying and dusting machinery, including the structure and care of the principal types of pumps, nozzles, hose, and vehicles; (b) methods in the application of materials used in orchards, with the important considerations for spraying each fruit and for combating each orchard pest; (c) preparation for use of the common fungicides and insecticides.

1 class hour 2 2-hour laboratory periods, credit, 3.
8:00-8:50 Tu., 1:00-2:40 Tu., 1:55-3:35 Th.
Assistant Professor ROBERTS.

75. I. SYSTEMATIC POMOLOGY (1938-39). — For juniors and seniors. A study of the more important kinds and varieties of fruits grown in the United States, their relationships and nomenclature. Particular emphasis is placed upon the identification, classification, and value of varieties including a study of the characters of the plant as well as the fruit. Given in alternate years.

1 class hour. 3 2-hour laboratory periods, credit, 4.
9:00-9:50 Tu.; 1:00-2:40 M. W. F. Professor FRENCH.

77. I. COMMERCIAL POMOLOGY (1939-40). — For juniors and seniors. A critical consideration of the picking, handling, storing, and marketing of fruits, including a discussion of storage houses, fruit packages, methods of refrigeration, grading, and packing. This course also considers the leading American and foreign centers of fruit production as they affect our own fruit industry through competition here or abroad. Given in alternate years.

2 class hours. 1 2-hour laboratory period, credit, 3.
9:00-9:50 Tu. Th.; 1:00-2:40 W. Assistant Professor ROBERTS.

1. I. 82. II. ADVANCED POMOLOGY. — For seniors. A consideration of the scientific principles governing the growth and behavior of fruit-bearing plants. Special attention is given to a critical survey of the more important research work in the field of pomology.

1 class hours. 1 2-hour laboratory period, credit, 3.
Hours by arrangement. Professor VAN METER.
Prerequisite, Pomology 53.

83. I. 84. II. SEMINAR. — For seniors. Advanced study of problems relating to fruit production. Each student is given assignments which must be reported to the seminar for discussion.

1 class hour. Credit, 1.
Hours by arrangement. The DEPARTMENT.

PLANT BREEDING.

Elective Courses.

51. I. PLANT GENETICS. — For juniors and seniors. A study of the principles of inheritance as applied to plants, together with a consideration of the methods used and problems involved in the improvement of horticultural crops.

3 class hours. Credit, 3
11:00-11:50 M. W. F. Professor FRENCH.

52. II. ADVANCED PLANT BREEDING. — For juniors and seniors. An advanced study of experimental methods, Mendelian analysis, fluctuating variations, mutations, sterility, disease resistance, etc. Laboratory work in the experimental breeding of plants.

2 class hours. 1 2-hour laboratory period, credit, 3
11:00-11:50 Tu., 1:00-1:45 Th.; 1:00-2:40 F. Professor FRENCH.
Prerequisite, Plant Breeding 51.

81. I. 82. II. SPECIAL PROBLEMS IN PLANT BREEDING. — For seniors. Qualified seniors may carry on advanced study on special topics or undertake such original investigations as time and available material will permit.

Credit, 2
Hours by arrangement. Professor FRENCH.
Prerequisite, Plant Breeding 52.

DIVISION OF PHYSICAL AND BIOLOGICAL SCIENCES.

Professor GORDON.

Bacteriology and Physiology.

Professor GAGE, Professor BRADLEY, Assistant Professor GARVEY,* Dr. RAKIETAN.

The courses in bacteriology and physiology have been planned to furnish: (1) general training in these subjects for all college students, (2) training for those interested in agriculture, industries, and domestic science, (3) training for prospective students of human or veterinary medicine and public health, (4) training for teachers and laboratory workers in the biological sciences. The courses in bacteriology include introductory and general courses, and advanced work, most of which precedes the applied bacteriology of agriculture, the arts, industry, domestic science, and public health. The course in physiology includes considerations of modern ideas on this subject in relation to human welfare.

BACTERIOLOGY.

Elective Courses.

31. I. INTRODUCTORY AND GENERAL BACTERIOLOGY. — For sophomores, juniors and seniors may elect. Designed to make micro-organisms real and significant. The laboratory covers the use and proper care of the compound microscope, the preparation of culture media, methods of sterilizing equipment, the isolation and handling of pure cultures, simple and differential staining, studies on classification and cultural and biochemic studies on type species of pathogenic and nonpathogenic bacteria. Individual practice in the isolation and identification of bacterial forms is required part of the laboratory assignment. The course aims to provide a basis for bacteriological study and interpretation and to furnish such material as will be valuable in understanding agriculture, domestic science and public health problems.

2 3-hour laboratory periods, credit,
Sect. I, 1:00-3:35 M. F.; Sect. II, 1:00-3:35 Tu., 1:55-4:30 Th.
Professor BRADLEY and Assistant Professor GARVEY.*

* Absent on leave.

52. II. ADVANCED BACTERIOLOGY. — For juniors; seniors may elect. A continuation of Course 31. The identification and differentiation of bacterial species by morphological, cultural, physiological, and serological studies. The combined courses give to the student not only a comprehensive picture of various forms of existing bacteria but develop a specialized technique for their cultivation, isolation, and identification.

2 3-hour laboratory periods, credit, 3.

1:00-3:35 Tu., 1:55-4:30 Th.

Professor BRADLEY and Assistant Professor GARVEY.*

Prerequisite, Bacteriology 31.

61. I. BACTERIOLOGY. (Public Health.)— For juniors; seniors may elect. Considers the relation of the human body to its environment in the maintenance of health and the production of disease. The administration and organization of community health, the prevention or control of animal or human diseases of public health significance are considered. A study of special community health problems and the relationship of these problems to social welfare is discussed.

2 class hours. Credit, 2.

9:00-9:50 Tu. Th. Professor BRADLEY.

62. II. BACTERIOLOGY. (Public Health.)—For juniors; seniors may elect. Sanitation and its relation to agriculture, industry, and public health. The microbiological features of air, water, soil, sewage, and refuse; industrial hygiene and the control of municipal and rural sanitary projects are considered.

2 class hours. Credit, 2.

9:00-9:50 Tu. Th. Professor BRADLEY.

81. I. 82. II. APPLIED BATERIOLOGY. — For seniors; juniors may elect. These two courses covering a full year's work are designed to give the student a working knowledge of present-day applied bacteriology. The work in the laboratory is presented in three distinct sections: (1) soil, (2) food, (3) dairy. In soil, such subjects as the number and development of micro-organisms in different soils, factors influencing their growth and activity and changes wrought upon matter in the production of soil fertility, ammonification, nitrification, etc., receive attention. In food, a study of preservation, fermentation, spoilage and methods of sanitary examination are considered. In dairy, emphasis is placed upon modern methods for examining the sanitary quality of milk and milk products. Groups of bacteria normally present, abnormal and normal fermentations, effect of temperature and the role of milk in the transmission of disease are some of the subjects receiving special consideration.

2 3-hour laboratory periods, credit, 3.

For 81, 1:00-3:35 W., 9:00-11:50 S. For 82, 1:00-3:35 M. F.

Professor BRADLEY or Assistant Professor GARVEY.*

Prerequisite, Bacteriology 52.

85. I. BACTERIOLOGY. (Serology.) — For seniors. This course aims to supplement Course 52 and is planned to complete work essential for the advanced study in bacteriology and physiological science. This course includes the study, preparation and standardization of such biological products as antigens, agglutinins, precipitins, hemolysins, and complement-fixation bodies, and the use of the same in differential bacteriology and disease diagnoses. Consideration is also given to isohemagglutinins and their relation to human blood groups. Class limited to ten students.

2 3-hour laboratory periods, credit, 3.

1:55-4:30 M. F. Professor GAGE.

Prerequisite, Bacteriology 52.

PHYSIOLOGY.

32. II. PHYSIOLOGY. — For sophomores; juniors and seniors may elect. This constitutes the introductory work in physiology and is so

planned that beginners as well as those who plan to continue may have some knowledge of the theories and practices of the science. Exercises on basic biological laws are considered, so essential to the comprehension of modern physiology. The study and use of instruments are used to illustrate the various phases presented. Aspects of muscle and nerve physiology, circulation, hemo-dynamics and alimentation will be considered.
2 class hours. 1 2-hour laboratory period, credit, 3.
Dr. RAKIETEN.

75. I. PHYSIOLOGY. — For seniors; juniors may elect. A continuation of Course 32. Physiology of nutrition, including diet, calorimetry, energy exchange, and basal metabolism, followed by work on the physiology of elimination. Studies on lymphatics and ductless glands will be included. This course is especially planned to further physiological applications for students in nutrition, bacteriology, and the biological sciences.
2 class hours. 1 2-hour laboratory period, credit, 3.
1:00-2:40 Tu., 1:55-3:35 Th. Professor GAGE.
Prerequisite, Physiology 32.

76. II. PHYSIOLOGY. — For seniors; juniors may elect. This is a continuation of Course 75 and is planned to make demonstrations in advanced neuro-muscular physiology, respiration, circulation and in endocrinology. Special attention will be given to the physiology of the special senses, such as taste, touch, sight, and hearing.
2 vlass hours. 1 2-hour laboratory period, credit, 3.
1:00-2:40 Tu., 1:55-3:35 Th. Professor GAGE.
Prerequisite, Physiology 75.

77. I. GENERAL PHYSIOLOGY. — For seniors; juniors may elect. This course is planned for those students who have studied organic chemistry and physics. It will be of service to all students in the biological sciences. The discussions and laboratory demonstrations will concern the nature of the processes underlying vital phenomena which are common to most living matter. It will deal exclusively with the fundamental principles which govern activities and life of animals and human beings.
2 class hours. 1 2-hour laboratory period, credit, 3.
11:00-11:50 M. F., 10:00-11:50 W. Dr. RAKIETEN.
Prerequisites, Physics 25 and 26; Chemistry 51 and 52.

Botany.

Professor OSMUN, Professor TORREY, Associate Professor CLARK, Assistant Professor DAVIS, Dr. EWER

The courses in botany are of three types: (1) those which present the principles of plant life both for their fundamental importance in this and other branches and for their general educational value; (2) those which have for their chief aim direct support of technical courses in agriculture and horticulture; (3) those providing broad, intensive training leading to specialization in the science. Courses in the last group also offer helpful training for students specializing in other sciences and in scientific agriculture.

Elective Courses.

1. I and II. INTRODUCTORY BOTANY. — For freshmen. Through laboratory, textbooks, and lantern slides an attempt is made to set forth a body of facts dealing with the morphology and physiology of plants which may serve not only as a foundation for future professional work in biological science, but may be of intrinsic value to the educated layman. The topics of seed germination, ecological adaptations, floral structures, taxonomy, botanical history, cytology, wood-anatomy, plant physiology and plant reproduction, receive appropriate elementary treatment. The lec-

tures attempt to interpret the facts of plant structure and function in the light of the major biological principles.

2 class hours. 2 2-hour laboratory periods, credit, 3.
Professor TORREY and Dr. EWER.

25. I. CRYPTOGAMIC BOTANY. — For sophomores; juniors and seniors may elect. Selected forms typifying the slime-molds, bacteria, algæ, fungi, lichens, liverworts, mosses and fernworts. The course has a two-fold purpose: (1) it is intended for students who desire to extend their knowledge to the principal branches of the plant kingdom, thus rounding out a general course of which Course 1 constitutes the first part; (2) it is also planned as an introduction to certain advanced courses for which it is prerequisite.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Professor OSMUN.

Prerequisite, Botany 1.

26. II. ECONOMIC AND TAXONOMIC BOTANY. — For sophomores; juniors and seniors may elect. Designed to acquaint the student with the local flora and with the source of such plant products as woods, resins, tanning materials, rubber, textiles, cereals, sugar plants, oils, fruits, spices, beverage and medicinal plants. Laboratory work will include the study of native trees and shrubs in the winter condition; the collection and identification of local plants; and the preparation of an herbarium of about 100 species. Competition for the Hills' Herbarium Prizes will be open to members of this course. Gray's Manual of Botany, a twig key, herbarium paper, covers, and labels required. Total cost: approximately $8.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Dr. EWER.

Prerequisites, Botany 1 and 25.

51. I. DISEASES OF VEGETABLES. — For juniors and seniors. Study of the principal diseases of vegetables occurring in field and greenhouse, with especial attention to those important in Massachusetts, and consideration of combative measures. This course is planned and conducted primarily for students interested in vegetable gardening, but those intending to enter any branch of plant industry should find it of interest. Students who desire to extend their knowledge of plant diseases over a wider range of crops may do so by taking, in addition to this, any or all of Courses 52, 53, and 54.

1 class hour. 1 2-hour laboratory period, credit, 2.
Assistant Professor DAVIS.

Prerequisite, Botany, 1.

52. II. DISEASES OF FRUITS. — For juniors and seniors. The plan of this course is similar to that of Course 51, but it is intended primarily for students interested in pomology.

1 class hour. 1 2-hour laboratory period, credit, 2.
10:00-10:50 Th.; 10:00-11:50 Tu. Assistant Professor DAVIS.
Prerequisite, Botany 1.

53. I. DISEASES OF FIELD CROPS. — For juniors and seniors. The plan of this course is similar to that of Course 51, but it is intended primarily for students interested in field crops.

1 class hour. 1 2-hour laboratory period, credit, 2.
1:00-1:45 Th.; 1:00-2:40 Tu. Assistant Professor DAVIS.
Prerequisite, Botany 1.

54. II. DISEASES OF FLORICULTURAL CROPS, ORNAMENTALS, SHRUBS, AND TREES. — For juniors and seniors. The plan of this course is similar

to that of Course 51, but it is intended primarily for students interested in floriculture, nursery practice, and forestry.
1 class hour. 1 2-hour laboratory period, credit, 2
8:00-8:50 Tu.; 8:00-9:50 S. Assistant Professor DAVIS.
Prerequisite, Botany 1.

56. II. DISEASES OF CROPS. — For juniors and seniors. This is a general course in which representative diseases of the principal crops grown in Massachusetts are studied. The plan of the course is otherwise similar to that of Course 51. It is intended for students majoring in entomology and others who desire a brief, general course of this nature.
1 class hour. 1 2-hour laboratory period, credit, 2
Assistant Professor DAVIS.
Prerequisite, Botany 1.

58. II. MICROTECHNIQUE. — For juniors and seniors. A course in the preparation of microscopic mounts including the celloidin and paraffin methods and involving the use of microtomes and of differential stains
2 2-hour laboratory periods, credit, 2
8:00-9:50 Tu. S. Professor TORREY.
Prerequisite, Botany 25.

59. I. 60. II. SYSTEMATIC BOTANY OF THE HIGHER PLANTS (1938-39). — Alternate with Courses 61 and 62. For juniors and seniors. An intensive study of the angiosperms. Lectures deal with the interrelations of the flowering plants and with the ecology, geography, and economic importance. Laboratory work consists of a study of types from the most important natural plant families. Particular emphasis is laid on the flora of Massachusetts. The department herbarium and greenhouses supply material of important tropical forms for study.
2 class hours. 1 2-hour laboratory period, credit, 3
10:00-10:50 M. F.; 1:00-2:40 W. Professor TORREY.
Prerequisite, Botany 1.

61. I. 62. II. THE COMPARATIVE ANATOMY OF GREEN PLANTS (1939-40). — Alternate with Courses 59 and 60. For juniors and seniors. The lectures deal with the comparative anatomy of green plants from the evolutionary standpoint. Particular emphasis is laid upon the woody forms both living and extinct. Of the latter, the department is fortunate in possessing excellent sets of micro-preparations and lantern slides.
2 class hours. 1 2-hour laboratory period, credit, 3
10:00-10:50 M. F.; 1:00-2:40 W. Professor TORREY.
Prerequisite, Botany 25.

63. I. 64. II. SYSTEMATIC MYCOLOGY. — For juniors; seniors may elect. Morphology and development of typical species representing the orders and families of fungi; practice in identification, collection and preservation of fungi; systems of classification; collateral reading.
1 class hour. 2 2-hour laboratory periods, credit, 3
10:00-10:50 W.; 2:50-4:30 M. F. Assistant Professor DAVIS.
Prerequisite, Botany 25.

75. I. 76. II. PLANT PATHOLOGY. — For seniors. Comprehensive study of diseases of plants; training in laboratory methods and technique, including culture work and artificial inoculation of hosts; miscellaneous diagnosis; study of literature and representative life histories of pathogens. Prepares for civil service, experiment station, and college work.
1 class hour. 3 2-hour laboratory periods, credit, 4
8:00-8:50 Th. 6 hours by arrangement. Professors OSMUN and DAVIS.
Prerequisite, Botany 25.

77. I. 78. II. PLANT PHYSIOLOGY. — For seniors; juniors may elect. Study of the factors and conditions of (*a*) plant nutrition, including the taking up of water and mineral substances, the assimilation of carbon and

nitrogen, and the release of energy due to the processes of dissimilation; (b) plant growth, including the influence of internal and external factors on growth, the development of reproductive and vegetable organs; (c) plant movements, including those due to the taking up of water, and those of both motile and fixed forms in response to external stimuli. Weekly conferences are held, at which students report on assignments to original sources in the literature.

2 class hours. 2 2-hour laboratory periods, credit, 4.
9:00-9:50 Tu. Th.; 1:00-2:40 M. F. Associate Professor CLARK.
Prerequisites, Botany 25; Chemistry 31 or 51.

80. II. PLANT PHYSIOLOGY. — For seniors; juniors may elect. A briefer course than Course 77 and 78, designed especially for students in horticulture, agronomy, and floriculture, and aiming to give the underlying principles of plant physiology which will supply the scientific basis for the manifold practices in the various fields of plant culture.

2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 Tu. Th.; 2 hours to be announced.
Associate Professor CLARK.
Prerequisite, Botany 1.

81. I. PLANT ECOLOGY. — For seniors. Study of plants in relation to their environment, with special emphasis on the newer field studies, which have given increasing insight into the physical and chemical factors as they influence growth and development in the field and the adaptability of plants to changes in their normal environment. The various types of plant formations and successions are studied, as well as the mutual and antagonistic relations of certain plants.

1 class hour. 2 2-hour laboratory periods, credit, 3.
8:00-8:50 Tu., 1:00-2:40 W., 8:00-9:50 S. Associate Professor CLARK.
Prerequisite, Botany 1.

84. II. THE FERNS (1938-1939). — For seniors; juniors may elect. Intensive study of the morphology, life-history, and taxonomy of the fern plants, with especial attention to the fern flora of New England. Given in alternate years.

1 class hour. 1 2-hour laboratory period, credit, 2.
1:00-1:45 Th.; 1:00-2:40 Tu. Professor OSMUN.
Prerequisite, Botany 25.

Chemistry.

Professor RITCHIE, Professor CHAMBERLAIN, Professor PETERS, Associate Professor SEREX, Assistant Professor FESSENDEN, Dr. PARROTT.

In the courses in chemistry, emphasis is laid on both their educational and their vocational value. The courses in the freshman year deal with fundamental principles and give the student such an understanding of the subject as will enable him to appreciate the relation of chemistry to the other sciences and to agriculture and industry. The more advanced courses, including quantitative analysis, organic, physiological, and physical chemistry, are for those who intend to take up graduate study, to become teachers and workers in the allied sciences, or who desire to follow chemistry as a vocation. Those completing the undergraduate courses are fitted for positions in the agricultural industries—fertilizer, feed, and insecticide manufacture—as well as in other lines of industry, and in the State experiment stations, Federal departments, commercial laboratories, and in high school teaching. Postgraduate students are prepared for positions as teachers in colleges, and for more advanced positions in industry and in the experiment stations.

1. I. 2. II. GENERAL CHEMISTRY. — For freshmen. A study of the fundamental chemical laws and theories. The laboratory work is a central feature of the course and is supplemented closely by the lectures. A considerable amount of descriptive material will be included in connec-

tion with discussions of the periodic system, atomic structure, and i various applications of the principles. The object of the course is to giv the student a sound scientific training through a course in chemistry Students who have had no previous work in chemistry will be groupe together in laboratory and recitation sections so that they may hav special attention.

1 class hour, 1 recitation hour. 2 2-hour laboratory periods, credit, 4
11:00-11:50 W. or F.; 11:00-11:50 M. or 1:00-1:45 M. or W. or F.; 10:0(11:50 M. F. or 1:00-2:40 M. F. or 2:50-3:35 M. F. or 2:50-4:30 Tu 1:00-2:40 W. Assistant Professor FESSENDEN.

25. I. QUALITATIVE ANALYSIS. — For sophomores. A study of th fundamental principles and laws concerning the behavior of solutions c electrolytes. The laboratory work deals with the characteristic propertie reactions, and the systematic separation and identification of the commo cations. This course is designed to meet the needs not only of those stuc ents majoring in chemistry, but also of those students majoring in othe subjects where inorganic Chemistry is of importance.

1 class hour. 2 2-hour laboratory periods, credit, 3.
10:00-10:50 Th.; 8:00-9:50 M. F. or 2:50-4:30 M. F. or 1:00-2:40 Tu 1:55-3:35 Th. Associate Professor SEREX.
Prerequisite, Chemistry 2.

26. II. QUALITATIVE ANALYSIS. — For sophomores. A continuation c Chemistry 25, but with the emphasis on the properties, reactions, and th identification of the anions. A considerable portion of the laboratory wor is devoted to the study of substances unknown to the students.

1 class hour. 2 2-hour laboratory periods, credit, 3
10:00-10:50 Th.; 8:00-9:50 M. F. or 2:50-4:30 M. F. or 1:00-2:40 Tu 1:55-3:35 Th. Associate Professor SEREX.
Prerequisite, Chemistry 25.

31. I. 32. II. ORGANIC CHEMISTRY. — For sophomores; juniors an seniors may elect. This is a short course in organic chemistry primaril for Home Economics and Agricultural majors, and for such Gener Science majors as are not premedical. The course covers the first part c the subject-matter given in Chemistry 51 and 52, but in a less compr hensive manner, and deals primarily with that part of organic chemistr having to do with food and nutrition and agricultural products. Stu ents taking this course may elect subsequently only Chemistry 79 and 8

2 class hours. 1 2-hour laboratory period, credit,
10:00-10:50 Tu. Th.; 1:55-3:35 Th. Professor CHAMBERLAIN.
Prerequisite, Chemistry 1 and 2.

51. I. 52. II. ORGANIC CHEMISTRY. — For juniors; seniors may elec A systematic study, both from texts and in the laboratory, of the mo important compounds in the entire field of organic chemistry. Especi attention is given to those compounds which are found in agricultur products or are manufactured from them. These include alcohols, acid esters, fats, carbohydrates, and proteins. In the second semester cor pounds in the benzene series are considered. The work forms a found tion for courses in physiological chemistry and agricultural analysis, ar is especially planned for those majoring in chemistry or the other science

3 class hours. 1 3-hour laboratory period, credit,
9:00-9:50 M. W. F.; Sect. 1, 1:00-3:35 M.; Sect. II, 1:00-3:35 W. Professor CHAMBERLAIN.
Prerequisite Chemistry 25. Chemistry 26 is prerequisite for those majo ing in chemistry.

61. I. 62. II. QUANTITATIVE ANALYSIS. — For juniors; seniors m elect. The course includes gravimetric and volumetric analysis. T gravimetric determination of chlorine, sulfur and iron; volumetric a alysis with acids and bases; indicators, hydrogen-ion concentration a

pH; analysis of limestone; the use of potassium dichromate, permanganate and iodide as reagents; chemical calculations and problems; water analysis.

4 2-hour laboratory periods, credit, 4.
Sect. I, 1:00-4:30 M. F.; Sect. II, 1:40-4:30 Tu. Th. Professor PETERS.
Prerequisite, Chemistry 25. Chemistry 26 is prerequisite for those majoring in chemistry.

75. I. 76. II. PHYSICAL CHEMISTRY. — For seniors. A study of the fundamental theories and laws of physical chemistry, together with laboratory work which includes the important methods of physicochemical measurements.

class hours. 1 3-hour laboratory period, credit, 3.
1:00-11:50 M. F.; Sect. I, 1:00-3:35 M.; Sect. II, 1:00-3:35 W.
Associate Professor SEREX.
Prerequisite, Chemistry 61.

79. I. PHYSIOLOGICAL CHEMISTRY. — For seniors. Supplementary to Courses 51 and 52. For those who expect to take up scientific work in bacteriology, botany, agronomy, animal husbandry, etc., and who have had Courses 51 and 52, it gives acquaintance with the chemistry of the physiological processes in plants and animals, by means of which some of the important organic compounds studied in Courses 51 and 52 are built up in the living organism or are used as food by it. In the lectures, the study of food and nutrition as related to both human and domestic animals is the principal subject. In the laboratory, experimental studies are made of both animal and plant materials and processes.

class hours. 1 3-hour laboratory period, credit, 4.
:00-8:50 Tu. Th. S.; 9:00-11:50 Tu. Dr. PARROTT.
Prerequisite, Organic Chemistry.

86. II. REVIEW OF GENERAL CHEMISTRY. — For seniors. Primarily for students majoring in chemistry; others may elect by permission of the instructor. A knowledge of physical chemistry is desirable. The review of general chemistry is largely theoretical. Some subjects may be enlarged by special lectures, such as atomic structure. Werner's co-ordination theory, crystal structure as shown by X-rays.

class hours. Credit, 2.
0:00-10:50 Tu. Th. Professor PETERS.

88. II. HISTORY OF CHEMISTRY. — For seniors. An historical and biographical study of chemistry and chemists. The aim of the course is: 1) to give the student a comprehensive view of the science as a whole, through a study of the development of new ideas and the establishment of new theories and laws; and (2) to arouse an enthusiastic interest in the subject and an appreciation of the true spirit of scientific research, through a sympathetic presentation of the work and lives of the great chemists who have been the creators of the chemistry of today. The course will consist of lectures, supplemented by systematic correlated reading and the preparation of reports or essays.

class hours. Credit, 2.
0:00-10:50 M. F. Professor RITCHIE.

92. II. INTRODUCTION RESEARCH. — For seniors specializing in chemistry, who are not candidates for Honors. Admission only by permission of the Department. The aim of the course is to give the student an opportunity to learn the purpose and methods of research. To each student is assigned some special subject or problem in one of the following fields of chemistry, viz., analytical, biochemical, inorganic, organic, physical. A careful study of the literature goes hand in hand with the working out of the problem in the laboratory.

10 laboratory hours, credit, 5.
Hours by arrangement. The DEPARTMENT.

Entomology and Zoölogy

Professor ALEXANDER, Professor CRAMPTON, Professor VINAL, Assistant Professor SWEETMAN,* Assistant Professor WARFEL, Assistant Professor WOODSIDE, Dr. SHAW, Dr. TRAVER.

ENTOMOLOGY.

Courses in entomology are for two purposes: (1) The introductory courses aim to give the students a general knowledge of insects, particularly in their relations to man, his crops, his domestic animals, and his health. (2) More advanced courses are intended to train students desiring to specialize in entomology to become United States, State, or experiment station entomologists, teachers, foresters, tree wardens, entomologists, or to occupy other positions where an expert knowledge of insects is called for. The beekeeping courses are offered with the following aims: (1) To meet the increase in vocational opportunities for the production of bees or honey as a business. (2) To study the beekeeping needs of fruit and truck-crop industries and the part that bees play in the pollination of flowers. (3) To acquaint the student with a recreational field of many phases, which can be made profitable.

Elective Courses.

26. II. GENERAL AND FIELD ENTOMOLOGY. — Primarily for sophomores intending to major in one of the biological sciences; other sophomores, juniors and seniors may elect. For students who desire some knowledge of insects but cannot give more than one semester to the subject; also an introduction to the later courses for those who intend to follow entomology further. Two lectures throughout the semester are devoted to a brief survey of the entire field of entomology; structure and metamorphosis; the more important methods and materials for control of injurious species; a survey of the more conspicuous and important insects with particular attention to the fauna of New England. A laboratory period will be devoted to the preparation and formation of a collection of insects. Until about April 10th, this work will be done indoors and will consist of lectures and practical work preparatory to the field work after that date. Collections made by the students are studied in later courses.

2 class hours. 1 2-hour laboratory period, credit, 3
8:00-8:50 M. F.; 1:00-2:40 Tu. or W. Professor ALEXANDER.

51. I. PESTS OF SPECIAL CROPS. — For juniors and seniors not specializing in entomology. The laboratory work in this course is chiefly individual. Students specializing in subjects other than entomology, who desire a more complete knowledge of the insects connected with their major lines of work, can obtain it through this course. Work in the laboratory consists of identification, life-history studies and control measures of important insect pests. Work of this nature is available on pests of field crops, market-garden crops, fruits, flowers, shade trees and shrubs, forest trees, household articles, domestic animals, and man.

1 class hour. 2 2-hour laboratory periods, credit, 3
10:00-10:50 M.; 1:00-2:40 Tu., 1:55-3:35 Th. Dr. SHAW.
Prerequisite, Entomology 26.

* Absent on leave for the second semester 1938-39.

53. I. APPLIED ENTOMOLOGY. — For juniors; seniors may elect. The laboratory work is chiefly individual. Studies on the more important insect pests, their life-histories, damage, identification, and methods of control. Each student prepares a bulletin dealing with some specific insect pest or problem in entomology. Special attention is devoted to the use of entomological literature, methods of preparing scientific papers and the general principles of insect control.

1 class hour. 2 2-hour laboratory periods, credit, 3
10:00-10:50 W.; 2:50-4:30 M. F. Dr. SHAW.
Prerequisite, Entomology 26.

55. I. 56. II. CLASSIFICATION OF INSECTS. — Primarily for juniors specializing in entomology. Laboratory work on the identification of the major orders of insects. In Course 56, the immature stages of insects, with particular stress on their structure and recognition.

3 2-hour laboratory periods, credit, 3.
9:00-10:50 Tu. Th. S. Professors ALEXANDER and CRAMPTON.
Prerequisite, Entomology 26, Entomology 57, previously or concurrently.

57. I. INSECT MORPHOLOGY. — Primarily for juniors specializing in entomology, and for a limited number of others having the prerequisite. The lectures treat of the internal and external anatomy of insects, particular stress being placed on those structures needed in classification, for use in the parallel Course 55. In the laboratory, the internal and external anatomy of the more important groups is studied, with emphasis on those characters most used in the determination of insects.

1 class hour. 3 2-hour laboratory periods, credit, 4.
10:00-10:50 F.; 1:00-2:40 M. Tu. F. Professor CRAMPTON.
Prerequisite, Entomology 26.

72. II. FOREST AND SHADE-TREE INSECTS. — For juniors; seniors may elect. The lecture work deals with the principles and methods of controlling insects which attack shade trees, forests, and forest products. The laboratory periods are devoted to a study of the more important species, their identification, biology, and specific control measures. One afternoon for a field excursion is required.

1 class hour. 2 2-hour laboratory periods, credit, 3.
9:00-9:50 W.; 1:00-2:40 M. F. Professor ALEXANDER.
Prerequisite, Entomology 26; 55, 56, and 57 desirable.

74. II. MEDICAL ENTOMOLOGY. — For juniors. Diseases of man and animals that are transmitted by insects and other arthropods.

1 class hour. 1 2-hour laboratory period, credit, 2.
Professor CRAMPTON.
Prerequisite, Entomology 26.

79. I. ANIMAL ECOLOGY. — For juniors and seniors. Designed for students specializing in entomology, zoology, and related fields. The course deals with the relation of animals to their environment, covering the physical factors as temperature, moisture, light, etc., and the biotic factors as neighbors, competitors, predators, etc. Both terrestrial and aquatic communities are studied. The student is shown not only that animals do things, but why they make definite responses to the environmental factors. Actual measurement of the environmental factors and responses of the animals in the field and laboratory are included.

2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 M. F.; 2:50-4:30 M. Assistant Professor SWEETMAN.
Prerequisite, Entomology 26 or Zoology 25.

80. II. INSECT CONTROL. — For seniors; qualified juniors may elect. The scientific basis of insect control is considered from the chemical, biological, ecological, mechanical, and legislative approaches. Special emphasis is placed on the composition, manufacture, preparation, and reactions of insecticides, and the use of resistant hosts, micro-organisms and the larger parasites and predators that might be used in the control of insects.

1 class hour. 2 2-hour laboratory periods, credit, 3.
9:00-9:50 M.; 2:50-4:30 M. F. Assistant Professor SWEETMAN.
Prerequisites, Entomology 53, 55, and 57; 79 and 81 desirable.

81. I. PHYSIOLOGICAL ENTOMOLOGY. — For seniors; qualified juniors may elect. A detailed consideration is given to the organ systems, showing the functions such as nutrition, respiration, and growth, and the relationship of physiology to behavior. A portion of the laboratory time

will be devoted to assigned individual problems conducted on a research basis. These problems may deal with any phase of insect biology or control.

1 class hour. 2 2-hour laboratory periods, credit, 3.
10:00-10:50 W.; 1:55-3:35 W.; 2:50-4:30 F.
Assistant Professor SWEETMAN.

Prerequisite, Entomology 26; 53, 55, and 57 desirable.

87. I. 88. II. SPECIAL PROBLEMS IN ENTOMOLOGY. — For seniors and graduate students. Problem work in many fields, as apiculture, biological control and insectary practice, insecticides, morphology, and classification. Intended primarily to introduce qualified students to research methods in some branch of entomology. Excess departmental credits are necessary for election.

Credit, 1, 2 or 3.
Hours by arrangement. The DEPARTMENT.

Prerequisites, Entomology 26, 53, 55, 57, and should be preceded or accompanied by any other courses in the restricted field of the problem.

90. II. EVOLUTION. — For seniors, juniors may elected. In order to demonstrate the universal scope and operation of the laws of evolution, the course includes a brief sketch of the probable origin and evolution of matter as viewed in the light of modern physical and chemical research; the evolution of the solar system, leading to the formation of the earth; the changes in the earth, preparatory to the production of life; the physical and chemical basis of life; the probable steps in the formation of living matter, and the theories concerning it; the evolution of living things; the developmental history of man, and of the races of mankind; the evolution of human intelligence, languages, culture, institutions, etc., and man's probable future in the light of his past development. Especial consideration is given to the factors of evolution, the basic principles of heredity, variation, and similar topics, with particular reference to their application to human welfare.

2 class hours. Credit, 2.
Professor Crampton.

APICULTURE.

Elective Courses.

66. II. INTRODUCTORY BEEKEEPING. — For juniors and seniors. The laboratory work consists of a study of beekeeping equipment and the methods of assembling this material; a study of pollen and honey plants; spring management. There will be assigned readings in conjunction with the above. The lectures are intended to give the student a broad grasp of the entire field of beekeeping, considering such subjects as history; statistics of beekeeping in America; the races of bees; methods of management; bee-diseases; pollination; queen-rearing.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Dr. SHAW.

85. I. ADVANCED BEEKEEPING. — For seniors. The laboratory work consists of fall management, care of the honey crop, preparation of colonies for wintering bee-diseases, and some simple types of biometrical problems. The lectures consider, among other things, the physical and chemical characteristics of honey and wax; chemical tests to detect adulteration of honey; bee-diseases; and biometry. There will be assigned readings covering important work and problems in beekeeping.

2 class hours. 1 2-hour laboratory period, credit, 3.
Dr. SHAW.

Prerequisite, Entomology 66.

ZOOLOGY.

The offerings in zoology comprise: (1) an elementary course which

constitutes one half of the freshman biology course and is required of all students in the Division of Physical and Biological Sciences, including all prospective majors in either zoology or entomology; (2) an elective sophomore course, required of all students specializing in zoology and strongly recommended for those intending to follow entomology as a profession; and (3) several courses of a more advanced nature intended for students who are preparing for medicine or who wish to specialize in biology or zoology.

Elective Courses.

1. I. and II. ZOOLOGY. — (Constitutes one semester of the freshman course in biology). For freshmen; sophomores may elect. This course or its equivalent is prerequisite to all other courses in zoology. It provides an introduction to the principles of biology, with special reference to the zoological aspects. The structure and activities of a representative vertebrate animal, the frog, are considered in detail and the knowledge thus gained is utilized in a comprehensize survey of the phyla of the animal kingdom. Brief introductions are given to the principles of classification, nutrition, structure and functions of protoplasm, genetics, heredity and development.

2 class hours. 2 2-hour laboratory periods, credit, 3.
Assistant Professor WOODSIDE.

25. I. ELEMENTS OF ZOOLOGY. — For sophomores; juniors and seniors may elect. This course or its equivalent is generally prerequisite to all other courses in zoology. It consists of an elementary treatment of the principles of animal biology, and provides a measure of preparation for such subsequent studies as assume some acquaintance with the phenomena of animal life. Offered in 1938-39; thereafter superseded by the following Course 25.

2 class hours. 1 2-hour laboratory period, credit, 3.
Assistant Professors WARFEL and WOODSIDE.

25. I. INTRODUCTORY ZOOLOGY. — For sophomores; juniors and seniors may elect. A consideration of the phyla of the animal kingdom, including their phylogeny, distribution, abundance, ecology, life histories, and morphology of typical species. Particular emphasis will be placed upon those animals of importance to man, including the parasites of man and his domestic animals, food animals, and those otherwise of commercial importance (exclusive of insects which are considered in a separate course, Entomology 26). The course is designed to afford students an opportunity to apply biological principles learned in earlier courses and to become familiar with the zoology of one's surroundings. Offered in 1939-40 and thereafter.

2 class hours. 1 2-hour laboratory period, credit, 3.
Assistant Professor WARFEL.

26. II. FORMS OF INVERTEBRATE ANIMALS. — For sophomores; juniors and seniors may elect. This course is designed to give a substantial introduction to the more important classes of non-vertebrated animals. It is intended for students of zoology, entomology, and general biology, and is recommended as a preparatory course for historical geology. See descriptions of Course 69. I, and 70. II, for those who plan to specialize in zoology. Offered in 1938-39; thereafter discontinued.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Assistant Professor WOODSIDE.

Prerequisite, Zoology 25.

50. II. ELEMENTS OF HISTOLOGY AND MICROSCOPIC TECHNIQUE. — For juniors; seniors and graduate students may elect. The course comprises (1) an elementary study of animal tissues, (2) a consideration of the principles and methods involved in microtechnique, (3) a series of

practical exercises in preparing animal tissues for microscopic examination.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Dr. TRAVER.

Prerequisite, Zoology 25.

65. I. 66. II. COMPARATIVE VERTEBRATE ZOOLOGY. — For juniors, seniors, and graduate students. The work is arranged to run through the year and deals primarily with features of adult anatomy, with only a minimum of embryology (see Courses 75. I, and 76. II). A year's work is recommended for those who wish a broad knowledge of comparative vertebrate zoology, and is required of those who specialize in zoology. Premedical students will find a full year's work in comparative anatomy most helpful. The laboratory work in Course 65. I, is devoted chiefly to the dissection of the dogfish; that in Course 66. II, to mammalian anatomy. A knowledge of vertebrate zoology is very helpful in the study of historical geology.

1 class hour. 2 2-hour laboratory periods, credit, 3.
9:00-9:50 Th.; Sect. I, 1:00-2:40 M. F.; Sect. II, 1:55-3:35 Th., 10:00-11:50 S. Assistant Professor WARFEL.

Prerequisite, Zoology 1.

69. I. 70. II. COMPARATIVE INVERTEBRATE ZOOLOGY. — For juniors, seniors, and graduate students. These courses provide a broad survey of the field of invertebrate zoology. Marine, fresh water, terrestrial and parasitic forms are included. Fossil types are briefly considered. The work is planned to run through the year, but students who have had Zoology 26 may elect either Course 69 or 70 and the work will be adapted to their needs. For students who have not had Zoology 26 and who are specializing in zoology both Courses 69 and 70 are required.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Hours by arrangement. Dr. TRAVER.

Prerequisite, Zoology 25.

75. I. 76. II. VERTEBRATE EMBRYOLOGY. — For seniors and graduate students; juniors may elect with permission of instructor. The study of vertebrate embryology generally assumes a knowledge of comparative vertebrate anatomy. The work is arranged to run through the year. Students may elect Course 75 without continuing Course 76, but may not elect Course 76 without having had Course 75 or its equivalent.

1 class hour. 2 2-hour laboratory periods, credit, 3.
10:00-10:50 Th.; 1:00-2:40 M. F. Assistant Professor WOODSIDE.

Prerequisite, Zoology 25.

80. II. ORNITHOLOGY. — For juniors; seniors and others may elect. The orders and ordinal characters of birds; families and family characters of Passerine birds; origin and relationships, adaptative radiation, migrations, distribution, and habits of birds. The work is conducted by means of lectures, practical exercises in the museum, assigned reading, and studies in the field.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Assistant Professor WARFEL.

Prerequisite, Zoology 25.

85. I. CLASSES OF ARTHROPODS OTHER THAN INSECTS. — For seniors; juniors may elect. Arthropods are studied from the phylogenetic standpoint, with especial reference to their relationship to the origin and evolution of insects.

1 class hour. 2 2-hour laboratory periods, credit, 3.
10:00-10:50 Tu.; 1:00-2:40 Tu., 1:55-3:35 Th. Professor CRAMPTON.

Prerequisite, Zoology 25.

91. I. 92. II. SPECIAL PROBLEMS IN ZOOLOGY. — For seniors and graduate students. Qualified graduate students and seniors who have met

departmental requirements for specialization in the field of zoology may arrange for work on a special problem in zoology.

Credit, 3.

Prerequisite, Zoology 25. The DEPARTMENT.

RECREATIONAL PLANNING.

51. I. 52. II. FIELD STUDIES IN NATURAL SCIENCE. — For juniors and seniors specializing in Recreational Planning. A course based on the physical geography, flora, and fauna of the region with special emphasis on methods, skills, and techniques of leadership in nature recreation. As far as practical the course will be held in the field.

1 class hour. 2 2-hour laboratory periods, credit, 3.

Dr. VINAL.

Geology and Minerology

Professor GORDON,* Assistant Professor ———

The departmental offerings are designed (1) to provide opportunity for the study of one or more phases of earth science by those who wish to extend their knowledge in this field; (2) to afford a program for moderate concentration by those who are particularly interested in geology. The class work of the junior-senior courses will be arranged to accommodate the general student and those who are specializing in geology; an additional period per week without credit may be required of those who are specializing in geology, for purposes of conference or other special work.

* Absent on leave for first semester 1938-39.

Elective Courses.

27. I. THE STORY OF THE EARTH. — For sophomores; juniors and seniors may elect. An introductory course in general geology. Considers briefly the origin, constitution, and age of the earth; the geologic agents and the ways in which they do their work; the different kinds of rocks and the ways in which they are formed; the origin, nature, and relations of the soil mantle; relations of the continents and ocean basins; movements of the lithosphere; continental seas; eras and periods of geologic time; records of past life. Field trips by arrangement. Not offered 1938-39.

3 class hours. Credit, 3.

Professor GORDON.

28. II. PHYSIOGRAPHY. — For sophomores; juniors and seniors may elect. Considers the genesis and evolution of the physiographic features of the lands and the geologic agents involved; the history of river systems; erosion cycles; features due to glaciation; changes in shore lines; the physiographic divisions of North America; relations of physiography to climate and the distribution of plants and animals; significant aspects of the influence of the physical geography of North America on the settlement and industrial development of the continent.

2 class hours. 1 2-hour laboratory period, credit, 3.

Professor GORDON.

51. I. MINERALOGY. — For juniors; seniors and graduate students may elect. A course in descriptive and determinative mineralogy. Deals chiefly with the rock-forming and economic minerals: composition, crystal forms; occurrence, and economic use, if any. In the laboratory a study is made of the physical properties or characters of minerals as a means of sight recognition, with simple tests, including the blowpipe, for their determination. Not offered 1938-39.

1 class hour. 2 2-hour laboratory periods, credit, 3.

Professor GORDON.

52. II. PETROLOGY. — For juniors; seniors and graduate students may elect. Deals with the different kinds of igneous, sedimentary and metamorphic rocks; modes of occurrence; structural features and relations to

one another; petrographic distinctions within each class and among the different classes.

1 class hour. 2 2-hour laboratory periods, credit, 3.
Professor GORDON.

Prerequisite, 1939-40 and thereafter, Geology 51.

61. I. HISTORICAL GEOLOGY. — For seniors; juniors and graduate students may elect. Deals with the principal events in the physical history of North America in chronological sequence; invasions of the continents by the sea; the sequences of the stratified rocks; mountain building and other diastrophic movements; vulcanism; peneplanation and lost intervals; criteria for the determination of geologic history. Not offered 1938-39.

3 class hours. Credit, 3.
Professor GORDON.

62. II. HISTORICAL GEOLOGY. — For seniors; juniors and graduate students may elect. The plants and animals of the past. Deals with the changes and sequences in plant and animal life in known geologic time. Geology 61 is a desirable preparatory course for Geology 62.

3 class hours. Credit, 3
Professor GORDON.

71. I. 72. II. SPECIAL PROBLEMS. — For seniors and graduate students, primarily those specializing in geology. The nature of the work depends on the student's interest and may take the form of: field studies; microscopic mineralogy and petrography; a study of fossils; other special work.

Credit, 3
Hours by arrangement. Professor GORDON.

Mathematics

Professor MACHMER, Associate Professor MOORE, Assistant Professor MILLER, Assistant Professor BOUTELLE, Assistant Professor ANDERSON, Mr. SWENSON.

The work of the freshman year is required. It is intended to furnish the necessary drill and groundwork needed for many of the scientific and practical courses of other departments. Thoroughness and accuracy are insisted upon. The advanced work in mathematics is taught from a practical standpoint, and many of its applications to other subjects are given.

Required Courses.

1. I. ALGEBRA AND TRIGONOMETRY. — For freshmen. A thorough study of the quadratic equation, simultaneous quadratics, systems of linear equations, determinants, complex numbers, elements of the theory of equations, exponential equations, logarithms; generalized binomial theorem, permutations and combinations, probability; trigonometric functions and elementary relationships and the solution of right triangles.

3 class hours. Credit, 3
Professors MOORE, MILLER, BOUTELLE, ANDERSON, and MR. SWENSON.

2. II. TRIGONOMETRY AND ANALYTICS. — The development of trigonometric formulas, transformations, trigonometric equations, the law of sines, the law of cosines, practical applications in solving oblique triangles. Representation of loci by graphs and equations in Cartesian and polar coordinates; analysis of equations to discover properties of curves; a detailed study of the conic sections—the straight line, circle, parabola, ellipse, and hyperbola.

3 class hours. Credit, 3
Professors MOORE, MILLER, BOUTELLE, ANDERSON, and Mr. SWENSON.

Elective Courses.

29. I. DIFFERENTIAL CALCULUS. — For sophomores and juniors; seniors may elect. The basic ideas and methods of the differential calculu

The course aims to give the student a realization of the power of the calculus as an instrument of analysis.

3 class hours. Credit,3.

Associate Professor Moore, Assistant Professors Miller, Boutelle, Anderson, and Mr. Swenson.

Prerequisite, Mathematics 2.

30. II. Integral Calculus. — For juniors; seniors may elect. A continuation of Mathematics 29 into the field of the integral calculus, with special emphasis on applications to problems.

3 class hours. Credit, 3.

Associate Professor Moore and Assistant Professor Miller.

Prerequisite, Mathematics 29.

55. I. Mathematics of Finance. — For juniors; seniors may elect. The mathematical principles of simple and compound interest, annuities, depreciation, valuation of bonds, insurance. The development and application of aids to computation in problems arising from financial transactions.

3 class hours. Credit, 3.

10:00-10:50 Tu. Th. S. Assistant Professor Miller.

Prerequisite, Mathematics 1.

60. II. Spherical Trigonometry and Solid Analytic Geomotry. — For juniors and seniors. The trigonometry of the sphere with applications to terrestrial and celestial problems. This is followed by a study of higher plane curves and the analytic representation of points, lines, and surfaces in space.

3 class hours. Credit, 3.

Associate Professor Moore.

Prerequisite, Mathematics 30.

62. II. Statistics. — For juniors; seniors may elect. The fundamental mathematical principles of statistical analysis. A discussion of averages, measures of dispersion, frequency and probability functions, correlation, random sampling. This course in conjunction with Agricultural Economics 79 should provide the student with a good understanding of the application of the statistical method and the interpretation of results.

3 class hours. Credit, 3.

10:00-10:50 Tu. Th. S. Assistant Professor Miller.

Prerequisite, Mathematics 30.

91. I. 92. II. Calculus and Differential Equations. — For seniors; juniors may elect. A course devoted to the topics of the calculus more advanced than those encountered in Mathematics 29 and 30, such as series, expansion of functions, envelopes, partial differentiation and multiple integrals. This work is followed by a study of differential equations, a subject which dominates the field of applied Mathematics.

3 class hours. Credit, 3.

8:00-8:50 M. W. F. Associate Professor Moore.

Prerequisite, Mathematics 30.

Astronomy and Meteorology.

Elective Course.

58. II. Descriptive Astronomy and Meteorology. — For juniors and seniors. A brief non-mathematical descriptive course which presents a general survey of the elementary facts and principles of astronomy and meteorology. The chief objective is to make the student alive to the beauty and the order that is revealed in the sky. The course deals with a consideration of the atmosphere through which astronomical phenomena are observed; fundamental conceptions of the celestial sphere, the solar system, stars, constellations, and nebulæ. Two hours

of observation and discussion may be substituted for any lecture period.

2 class hours. Credit, 2.

8:00-8:50 Tu. Th. Assistant Professor LANPHEAR.

Physics.

Professor POWERS, Assistant Professor ALDERMAN, Dr. ROSS.

The courses in this department present a basic study of the physical laws and phenomena of nature with special emphasis on the applications of the principles studied. These courses furnish satisfactory training for pre-medical students and for prospective teachers in secondary schools. Courses 25 and 26 constitute a study in general physics. The other courses afford opportunity for more advanced and individual work.

Elective Courses.

25. I. MECHANICS AND HEAT. — For sophomores; juniors and seniors may elect. This course is largely a study of the following and related topics: equilibrium of bodies; forms of energy and work; motion; fluids; surface tension; molecular phenomena; elasticity; wave-motion; thermometry expansion; hygrometry; transmission of heat; changes of state; radiation. Beginning in 1939-40, to be offered as 3 class hours, 1 2-hour laboratory period, credit, 4.

2 class hours. 1 2-hour laboratory period, credit, 3

The DEPARTMENT.

26. LIGHT AND ELECTRICITY. — For sophomores; juniors and seniors may elect. Includes wave-theory of light; optical instruments analysis of light; interference; polarization; magnetism; electrostatics; production and properties of electric currents; electrical appliances and machines; oscillatory circuits; vacuum tubes, and related topics. Beginning in 1939-40, to be offered as 3 class hours, 1 2-hour laboratory period, credit, 4.

2 class hours. 1 2-hour laboratory period, credit, 3

The DEPARTMENT.

Prerequisite, Physics 25.

28. II. SOUND. — For sophomores; juniors and seniors may elect. An elementary course in sound and acoustics. One laboratory period may be substituted for one class hour. Offered in 1938-39; thereafter discontinued.

3 class hours. Credit, 3

Assistant Professor ALDERMAN.

Prerequisite, Physics 25.

51. I. 52. II. MAGNETISM, ELECTRICITY, PHOTO-ELECTRICITY, THERMIONICS, AND APPLICATIONS. — For juniors and seniors. Course 51 deals largely with direct currents, Course 52 with alternating currents, applications of thermionics, and photo-electricity. These courses are planned to give the student a good training in theory and methods of measurement in the subjects indicated, which are useful in many fields of investigation. Modern methods are stressed and instruments of precision are used.

2 class hours. 1 2-hour laboratory period, credit, 3

8:00-8:50 Tu., Th.; Sect. I, 10:00-11:50 Tu.; Sect. II, 1:00-2:40 W.

Professor POWERS.

Prerequisites, Physics 26 and Mathematics 29 for Course 51; Physics 5 for Course 52.

53. I. OPTICS. — For juniors; seniors may elect. An intermediate course in the theory of light. Work in geometrical and physical optics is done. Precision instruments are used in the laboratory.
2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 Th. Th.; 1:55-3:35 Th. Assistant Professor ALDERMAN.
Prerequisite, Physics 26; Mathematics 29.

54. II. THERMODYNAMICS. — For juniors, seniors may elect. A study of heat exchanges and energy changes due to heat in systems of matter. The subject material and experimental methods are useful in other branches of science.
2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 Th. Th.; 1:55-3:35 Th. Assistant Professor ALDERMAN.
Prerequisite, Physics 26; Mathematics 29.

56. II. MECHANICS. — For juniors and seniors. Development of the fundamental concepts of dynamics with applications to particles and rigid bodies in translation and rotation. One laboratory period may be substituted for one class hour.
3 class hours. Credit, 3.
Dr. ROSS.
Prerequisites, Physics 26; Mathematics 29.

58. II. ELEMENTS OF PHOTOGRAPHY. — For juniors and seniors. Discussion of types of cameras, lenses, films, exposure meters, processing of films and papers, enlarging, composition, color photography, photomicrography. A 2-hour laboratory period may be substituted for the class hour.
1 class hour. Credit, 1.
Professor POWERS.

75. I. 76. II. ADVANCED EXPERIMENTAL WORK IN SELECTED TOPICS. — For seniors. These courses are largely experimental, and the subject matter is adapted to the needs of the individual student. The research viewpoint is emphasized.
3 2-hour laboratory periods, credit, 3.
Professor POWERS.
Prerequisites, Physics 25, 26; 51 and 52; or 53 and 54; Mathematics 29 and 30.

85. I. 86. II. MODERN PHYSICS. — For seniors. Typical subjects studied are theories of the atom, radiation, quantum theory, spectra, X-ray analysis, etc.
3 class hours. Credit. 3.
Professor POWERS.
Prerequisites, Physics 25, 26, 51, 53, 54, or equivalent; Mathematics 29 and 30.

Veterinary Science.

Professor LENTZ.

The courses in veterinary science are arranged to meet the needs of students who expect to follow practical agriculture; of prospective students of veterinary and human medicine, and of teachers and workers in the biological sciences.

51. I. VETERINARY HYGIENE. — For juniors; seniors may elect. The essentials of the health of animals and specific diseases of animals are considered.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor LENTZ.

75. I. COMPARATIVE VETERINARY ANATOMY. — For seniors; juniors may elect. The structure of the horse is studied and the structures of

other farm animals are compared with it. This is a lecture and demonstrational course.
3 class hours. Credit, 3
10:00-10:50 M. W. F. Professor LENTZ.

76. II. GENERAL VETERINARY PATHOLOGY. — For seniors; juniors may elect. A study of fundamental, general pathological conditions; inflammation, fever, etc., and application of principles to etiology, pathogenesis and prophylaxis of communicable and non-communicable diseases of domesticated animals.
3 class hours. Credit, 3
11:00-11:50 M. W. F. Professor LENTZ.

88. II. AVIAN PATHOLOGY. — For seniors. Consists of lectures devoted to principles of pathology, with specific application to avian diseases. Etiology, pathogenesis, and prophylaxis will be emphasized.
3 class hours. Credit, 3
9:00-9:50 M. W. F. Professor LENTZ.
Prerequisites, Bacteriology 31 and 52; Physiology 75 and 76.

DIVISION OF LIBERAL ARTS

Professor MACKIMMIE.

Economics.

Professor CANCE, Assistant Professor GAMBLE, Assistant Professor SMART, Assistant Professor ROHR, Mr. COLWELL.

The aims of the department are two: (1) to give the student an understanding of economic theory and of the application of economics to the organization of Society; (2) to provide students with the elementary training necessary for business vocations.

Required Course.

25. I and II. ELEMENTS OF ECONOMICS.— For sophomores. Definitions and introductory principles of production, exchange, and the financial organization of society, with a short survey of the economics of distribution and the use of wealth and income.
3 class hours. Credit, 3
The DEPARTMENT.

Elective Courses.

26. II. ELEMENTS OF DISTRIBUTION. — For sophomores. A continuation of Course 25 with emphasis on the economics of wages, rent, interest, ownership, and profits. In general, a more detailed study of the theory of wealth distribution and the social forces concerned with valuation and the apportionment of wealth and income arising from economic activity.
3 class hours. Credit, 3
Assistant Professor GAMBLE.
Prerequisite, Economics 25.

51. I. ECONOMICS OF BUSINESS AND INDUSTRY. — For juniors; seniors may elect. The application of Economics to business. A presentation of the industrial relationships and the principles upon which the production of economic goods is based. Problems arising from the development of mass production, competitive enterprises, diversification of industry and social control; working relations. Some study will be made of the corporation, its effectiveness, and its social influences.
3 class hours. Credit, 3
10:00-10:50 M. W. F. Mr. COLWELL.

52. II. MONEY, BANKING, AND CREDIT. — For juniors; seniors and graduate students may elect. The development of the monetary and banking systems of the United States; the operation of various types of financial institutions; the use of credit in economic production and the

development, organization, operation and social effects of agricultural and industrial credit institutions.

3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor GAMBLE.

53. I. MARKETING AND MARKETING PROBLEMS. — For juniors; seniors and graduate students may elect. Not open to students who have taken or are taking Agricultural Economics 55. A study of the forces and conditions which determine prices and the mechanism, methods, and problems concerned with transporting, storing, and distributing economic goods. Supply and demand, determination and course of prices, terminal facilities, the middleman system, speculation, protective legislation, the retail market, and direct sales are considered. The characteristics and possibilities of the New England market are given special attention. Lectures, readings, assigned studies, and field work.

3 class hours. Credit, 3.
10:00-10:50 Tu. Th. S. Professor CANCE.

54. II. CORPORATION FINANCE (1938-39). Alternates with Course 78. — For juniors and seniors. Types of business organization and their essential features; the nature and growth of the corporation and its economic and social significance; types of securities used for raising capital; promotion; financial structure of various types of concerns; administration of income; control; holding company finance; corporate failure and reorganization are considered.

3 class hours. Credit, 3
11:00-11:50 M. W. F. Mr. COLWELL.

55. I. ECONOMICS OF CONSUMPTION. — For juniors; seniors and graduate students may elect. The purpose of this course is a consideration of the importance of consumption in modern industry and commerce. It includes a study of the laws of consumption, standards of living, sources and factors determining family incomes, and of the administration of these incomes as shown by the expenditures of the nation and of various groups. The relation of consumption to the problems of population and to the development of society is also studied. Lectures, assigned readings, and class discussions.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor CANCE.

56. II. BUSINESS AND CONSUMER ASSOCIATION (1938-39). — For juniors and seniors. A study of the principles, practices, and possible economic and social significance of trade associations, consumer cooperatives, voluntary chains and other mutual groupings for economic purposes. Given in alternate years.

3 class hours. Credit, 3.
Professor CANCE.

58. II. BUSINESS LAW. — For juniors; seniors may elect. This course consists of a particular study, drawing, reading, and interpretation of contracts and sales; with specific problem work. Fundamentally, it is a course in logical reasoning using legal principles as its basic material. Wills, commercial paper, carriers, real estate agency, public and personal rights presented by lecture during the course.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Assistant Professor SMART.

75. I. CURRENT ECONOMIC PROBLEMS. — For seniors and graduate students; juniors may elect. An advanced course for those desirous of studying more intensively some current economic problems. Studies in economic philosophy and the economic aspects and consequences of progress in the physical and biological sciences, current economic questions, agricultural legislation, and government aids and subsidies are some of

the problems discussed. Particular attention will be given to economic problems relating to New England. Students will be encouraged to pursue lines of individual interest.
3 class hours. Credit, 3
10:00-10:50 M. W. F. Professor CANCE.

76. II. PRINCIPLES OF TRANSPORTATION. — For seniors and graduate students; juniors may elect. The development of highway, waterway, and railway transportation, and its relation to the agricultural and industrial development of the country; the principles governing the operation and control of transportation agencies; present-day problems relating to the shipment of farm and industrial products, rates, facilities, and services; methods of reducing wastes in transportation; the economics of the good roads movement and of motor transportation. Lectures, text, and field work.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor CANCE.

77. I. ECONOMICS OF INTERNATIONAL TRADE (1939-40). Alternates with Course 79. — For seniors; juniors and graduate students may elect. A study of the principles and practices of international trade, including a survey of historical trends of the foreign trade of the United States; the business methods of foreign trade; foreign exchange; and the efforts made by governments and business groups to influence foreign trade.
3 class hours. Credit, 3
9:00-9:50 Tu. Th. S. Assistant Professor GAMBLE.

78. II. PUBLIC FINANCE (1939-40). Alternates with Course 54. — For juniors and seniors. Principles of public revenues and expenditures with special emphasis on the systems and problems of taxation.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor GAMBLE.

79. I. LABOR PROBLEMS (1938-39). Alternates with Course 77. — For juniors and seniors. An analysis of the background and character of the modern labor problem with special reference to the United States. Topics to be considered include the problems of wages, hours, working conditions and unemployment; the trade union movement; and some agencies for the promotion of industrial peace.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor GAMBLE.

80. II. ECONOMIC THEORY AND SOCIAL PROGRESS (1939-40). — For seniors and graduate students. This course logically follows Economics 75 and is designed to point out the principles and philosophies underlying current economic thought and social practices. Given in alternate years.
3 class hours. Credit, 3.
Professor CANCE.

81. I. ELEMENTARY BUSINESS ACCOUNTING. — For seniors; juniors may elect. This course aims to give the student an elementary working knowledge of the principles underlying the accounting system in the gathering, analysis, and interpretation of accounting data, and the methods used in accounting and preparing the usual types of business statements for individual proprietorship businesses and partnerships. The managerial uses of accounting as a means of business control are the keynote of the course.
1 class hour. 2 2-hour laboratory periods, credit, 3.
1:55-2:40 W.; 1:00-2:40 Tu.; 1:55-3:35 Th.
Mr. COLWELL and Assistant Professor SMART.

82. II. ADVANCED BUSINESS ACCOUNTING. — For seniors. This course covers the problems of partnership and corporation accounting. Consider-

able time is spent on problems in amortization, depreciation, and the preparation. analysis, and interpretation of financial statements.
1 class hour. 2 2-hour laboratory periods, credit, 3.
1:55-2:40 W.; 1:00-2:40 Tu.; 1:55-3:35 Th.
Mr. COLWELL and Assistant Professor SMART.

85. I. LEGAL ASPECTS OF ECONOMIC TRANSACTIONS. — For seniors and graduate students. A continuation of Course 58.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor SMART.
Prerequisite, Economics 58.

91. I. 92. II. SEMINAR. — For seniors and graduate students. Research in economic theory; problems of labor, commerce, and industry. Library work and reports. If desirable some other economic study may be substituted.
1 or 2 2-hour conference periods, credit, 1 to 3.
The DEPARTMENT.

POLITICAL SCIENCE AND PUBLIC ADMINISTRATION.

Elective Courses.

28. II. STATE AND LOCAL GOVERNMENT. — For sophomores. A survey of the governmental structure and functions of the American state and its local governments—county, city, town, and village. This course is designed to complete the survey given by the history department in a course in American Government (History 25. I.).
3 class hours. Credit, 3.
Assistant Professor ROHR.

61. I. 62. II. PUBLIC ADMINISTRATION. — For juniors, seniors, and graduate students. A general survey of the field of public administration. Subjects treated include: the relationship of the administration to the other branches of government; organization and structure; central and local administration; personnel management; financial organization and practices; public relations; administrative law. This course must be taken for the full year.
class hours. Credit, 3.
1:00-11:50 Tu. S.; 1:00-1:45 Th. Assistant Professor ROHR.

63. I. POLITICAL SCIENCE (1938-39). — For juniors and seniors. A study of the nature and methods of political science; the origin, evolution, and theory of the State; forms, ends, and purposes of government; sovereignty; civil and political rights; constitutions; law; public administration; public opinion and political parties. Given in alternate years.
class hours. Credit, 3.
:00-8:50 Tu. Th. S. Assistant Professor ROHR.

64. II. MUNICIPAL GOVERNMENT AND ADMINISTRATION (1940-41). — For juniors and seniors. A survey of the governmental structure and functions of American municipalities, and a careful analysis of existing conditions. Special attention is given to administrative problems arising from such functions as: police, education, charities and corrections, finance, public works, taxation, and city planning and zoning. Given in alternate years.
class hours. Credit, 3.
Assistant Professor ROHR.

65. I. CONSTITUTIONAL LAW (1939-40). — For seniors; graduate students may elect. A study of the constitutional law of the United States. The case system is used. Given in alternate years.
class hours. Credit, 3.
Assistant Professor ROHR.

93. I. 94. II. SEMINAR IN POLITICAL SCIENCE. — For seniors and graduate students. Research in the field of government and public administration.

1 or 2 2-hour periods, credit, 1 to 3.
Assistant Professor ROHR.

Education and Psychology.

Professor WELLES, Professor GLICK, Assistant Professor NEET, Dr. PURVIS.
Mr. HEALD,[1] Mr. CARPENTER.

The work in this department may be said to have three major objectives: (1) to be of maximum service to those students who plan to engage in some form of educational work; (2) to provide training of a cultural nature in education, psychology, and philosophy for the educationed layman; (3) to afford intensive training for those who wish to specialize in any of the subject matter fields of the department. Students intending to teach vocational agriculture or related subjects need to consult the head of the department and the State Agent for Agricultural Teacher-training as early as possible to insure a desirable range of preparation.[2]

EDUCATION.

Elective Courses.

65. I. PRINCIPLES AND METHODS OF TEACHING. — For juniors; seniors may elect. The course is offered for those who are expecting to teach. By means of text, case studies, current educational literature, related books and lectures, teaching ideals and procedures are set up. The general plan is one of discussion with numerous short class papers. During the final weeks of the semester attention is given the special methods of teaching certain subjects in secondary schools and outstanding teachers are invited in to present ideas in the teaching of their special subjects.

3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor WELLES.

67. I. HISTORY OF EDUCATION. — For juniors; seniors may elect. This course opens a long vista in the development of one very important human endeavor—the passing on to succeeding generations of the accumulated social heritage of the race. The knowledge of this history is assuming greater importance for all teachers in the minds of educational supervisors. The main support is text and supplementary reading with lectures and discussion for clarity and emphasis.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Dr. PURVIS.

72. II. VOCATIONAL EDUCATION IN AGRICULTURE. — For juniors; seniors and graduate students may elect with permission of the head of the department. The course demands certain prerequisites of experience and objective which make permission necessary. It is the first of the series of special courses (72, 78, 82) with a survey of vocational education and an introduction to the teaching of agriculture in secondary schools. Information and observation preparatory to the apprenticeship course. Required of candidates for the agricultural teacher-training certificate.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor WELLES and VOCATIONAL DIVISION of STATE DEPARTMENT OF EDUCATION.

74. II. CLASSROOM MANAGEMENT. — For seniors; juniors may elect. A supplement to the course in Principles and Methods of Teaching with emphasis on those matters that make for conditions in which school work can be done effectively. These of necessity include right ideas about order

[1] State Agent for Agricultural Teacher-Training representing the State Department of Education in the administration of vocational education acts.

[2] A vocational teacher-training certificate will be awarded by the State Division of Vocational Education to those who qualify. (Required courses, 72, 78, 82. Recommended course 65.)

and discipline, routine organization of group work, adjustments for individual work, arranging and preserving right cooperative alliances outside and inside the schoolroom with supervisors, fellow teachers, pupils and patrons of the school. One section of the time is given definitely to the study of school laws that teachers should know in carrying on this cooperative alliance and is based on actual cases from court records.

3 class hours. Credit, 3.
11:00-11:50 M. W. F. Professor WELLES.

76. II. METHODS OF EXTENSION TEACHING. — For juniors and seniors majoring in the Divisions of Agriculture, Horticulture, and Home Economics. The course considers duties and objectives of extension workers; development of extension programs to meet community and regional problems from a national, state, and local point of view; the evaluation of results; use and development of leaders; and methods used in extension work.

2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 M. F.; laboratory hours by arrangement.
EXTENSION STAFF.

78. I and II. APPRENTICE TEACHING. — For a limited number of qualified candidates in vocational education. A full year in absentia, normally following the junior year in college, teaching agriculture, horticulture, and related subjects. Candidates should have completed the course in Education 72, and in Education 65 if possible, and must apply early to the head of the department. Occasionally open to graduate students.

Maximum credit, 6 semester hours.
Professor WELLES and VOCATIONAL DIVISION of STATE DEPARTMENT OF EDUCATION.

79. I. EDUCATIONAL TESTS AND MEASUREMENTS. — For seniors, juniors may elect. The course is designed to assist teachers in judging and improving their instruction. The most serviceable tests and scales for measuring school achievement are considered; test construction, administration, scoring and interpretation of results are studied and practiced. The statistical procedures involved in testing techniques are also briefly considered. One laboratory period may be substituted for one class hour.

3 class hours. Credit, 3.
11:00-11:50 M. F.; other hours by arrangement. Dr. PURVIS.

80. I and II. CADET TEACHING. — For seniors; juniors may be admitted. An opportunity to do regular teaching in a cooperating high school within commuting distance of the College. The student works under the direction of the local school after suitable adjustments have been made by the Department, with frequent checks by some member of its staff. This is an individual arrangement for each student-teacher but all meet in the weekly conference scheduled by the Department.

1 class hour. Credit, 3.
1:55-2:40 W. Professor WELLES and Dr. PURVIS.

82. II. TECHNIQUE OF TEACHING AGRICULTURE. — For seniors and others qualified, by arrangement with the head of the department. By preference this course follows Courses 72 and 78. It covers the material, methods, policies, and special requirements of the state for teaching agriculture and related subjects in vocational schools. Required of candidates for the agricultural teacher-training certificate.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor WELLES and VOCATIONAL DIVISION of STATE DEPARTMENT OF EDUCATION.

84. II. SECONDARY EDUCATION. — For seniors; juniors may elect. The course has two main objectives: (1) To give a perspective of the high school as to its aims, relations, organization, and functions; (2) To present in some detail the agencies and operations that carry these out

through the curricula, schedules, and extra-curricular activities. A basic text is used with lectures, supplementary reading and problem assignments.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Dr. PURVIS.

88. II. CLASSROOM OBSERVATION AND CURRICULUM STHDY. — For those who cannot meet the requirements of absence for Cadet Teaching (Education 80) but who wish a more intimate acquaintance with teaching procedures than the College classroom can give. The student makes an intensive study of his preferred subject by observing the teaching of it in a high school classroom or by working out a detailed curriculum in it or by both. Candidates must make individual arrangements with the Department.

1 class hour. 2 2-hour laboratory periods, credit, 3.
1:00-1:45 W.; laboratory hours by arrangement.
Professor WELLES and Dr. PURVIS.

PSYCHOLOGY.

Required Course.

26. I and II. GENERAL PSYCHOLOGY. — For sophomores. This is an introductory course dealing with the theories and principles of psychology in regard to the understanding and control of human thought, feeling, and action. Practical application of psychological principles is stressed.

3 class hours. Credit, 3.
Professor GLICK and Assistant Professor NEET.

Elective Courses.

51. I. EXPERIMENTAL PSYCHOLOGY. — For seniors; juniors may elect. This course is designed to give an understanding of the problems, experimental methods, and research techniques in general experimental and applied psychology. One of the aims of the course is the development of an experimental attitude concerning behavior as outlined in psychology.

2 class hours. 1 2-hour laboratory period, credit, 3.
11:00-11:50 M. F.; laboratory hours by arrangement.
Assistant Professor NEET.

54. II. EDUCATIONAL PSYCHOLOGY. — For juniors, seniors may elect The course deals with the native equipment of the child, the nature of learning, individual differences, mental testing, transfer of training, etc

3 class hours. Credit, 3
Professor GLICK and Dr. PURVIS.

Prerequisite, Psychology 26.

85. I. ABNORMAL PSYCHOLOGY AND MENTAL HYGIENE. — For seniors juniors may elect. A study of the causes, prevention, symptoms, and treatment of mental abnormalities with a view toward better understanding and control of oneself. Special attention is given to the following sensory and motor disorders, speech problems, disorders of association emotional extremes, mental deficiency and superiority, organic psychoses psychoneuroses and the major psychoses.

3 class hours. Credit, 3
9:00-9:50 M. W. F. Assistant Professor NEET.

86. II. INDUSTRIAL PSYCHOLOGY. — For seniors; juniors may elect. A study of the human factor in industry and business. The course aims to give the student an understanding of the psychological principles and practical techniques which are used in the employment of workers, in the solution of other personnel problems, in the treatment of the problems o

work, fatigue and motivation, and in the fields of advertising and selling. Assigned readings, field trips, and reports.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor NEET.
Prerequisite, Psychology 26.

89. I. PSYCHOLOGY OF GUIDANCE. — For seniors, juniors may elect. Guidance is conceived in a broad sense, and such topics as religious and aesthetic guidance are considered as well as vocational guidance. Special attention is given to the study of interests, aptitudes, and personality traits, and the psychological devices for measuring and evaluating these are considered and applied. Practice is given in administering and scoring tests, and statistical devices are used to interpret results.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Professor GLICK.
Prerequisite, Psychology 26.

90. II. CONTEMPORARY PSYCHOLOGIES (1938-39)..— For juniors and seniors. A study of the history and present status of the schools of psychology with an evaluation of the various theories and principles of each as they are applied to the fields of psychology and to the many problems of human behavior. The following schools are considered: structuralism, functionalism, Gestalt Psychology, behaviorism, purposivism, psychoanalysis, and topological psychology. Given in alternate years.

2 class hours. Credit, 2.
9:00-9:50 Tu. Th. Assistant Professor NEET.
Prerequisite, Psychology 26.

92. II. CHILD AND ADOLESCENT PSYCHOLOGY (1939-40). — For juniors and seniors. This course aims to develop an understanding of the mental and physical activities of the child from birth through adolescence. Psychological aspects of the following topics will be considered: original nature, maturation and mental development, emotions, play, social behavior, language, speech defects, learning, problems of adolescence, juvenile delinquency, moral behavior, personality and mental hygiene. Given in alternate years.

3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor NEET.
Prerequisite, Psychology 26.

95. I. 96. II. SEMINAR IN PSYCHOLOGY. — For seniors; juniors may elect. This course is for students of outstanding ability who have had Psychology 26 and two additional courses in psychology. The student will be allowed to do independent work and study on special problems or in certain fields of psychological interest. Special readings, surveys, reports, experiments and semester papers will be required. By arrangement with the members of the department.

Credit, 1.
Professor GLICK and Assistant Professor NEET.

PHILOSOPHY.

Elective Courses.

61. I. FUNDAMENTALS OF PHILOSOPHY. — For juniors; seniors may elect. A general approach to the study of philosophy both from the standpoint of method and content. This course attempts to provide a background for the understanding and evaluation of theories of education, religion, ethics, metaphysics, etc.

3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Professor GLICK.

62. II. HISTORY OF PHILOSOPHY (1939-40). — For juniors; seniors may elect. A survey of the development of thought from the early Greeks to the recent past. Emphasis is placed upon the relation of philosophy to

life as a whole with emphasis upon ethical, political, religious, educational and metaphysical problems. Given in alternate years.
3 class hours. Credit, 3
8:00-8:50 Tu. Th. S. Professor GLICK.

64. II. ETHICS (1938-39). — For juniors; seniors may elect. A study of the fundamental ethical theories and practices both historical and contemporary. Ethical theories are studied in relation to different types of civilizations and an attempt is made to evaluate the significance of each in our present civilization. Given in alternate years.
3 class hours. Credit, 3
8:00-8:50 Tu. Th. S. Professor GLICK.

History and Sociology.

Professor MACKIMMIE, Assistant Professor CUTLER, Assistant Professor CALDWELL, Dr. WILLIAMS, Assistant Professor CARY.

The courses in history and sociology are planned with the purpose of giving the student that knowledge and understanding of the important factors and problems in this field of study and life which every active citizen and educated man ought to have. In addition they enable a student to specialize in history and sociology and related science, or in social work.

HISTORY.

Elective Courses.

5. I. 6. II. THE DEVELOPMENT OF WESTERN CIVILIZATION. — For freshmen. The evolution of civilization in Europe from the Middle Ages to the present. Attention is paid to political, economic, intellectual, and religious factors.
3 class hours. Credit, 3
Professor MACKIMMIE, Assistant Professors CALDWELL and CARY.

25. I. AMERICAN GOVERNMENT. — For sophomores. A study of the historical development, structure, and operation of our government.
3 class hours. Credit, 3
Assistant Professor CALDWELL.

31. I. 32. II. ENGLISH HISTORY. — For sophomores. Emphasis on economic, social, and cultural influences, as well as on constitutional development. Either semester may be elected independently.
3 class hours. Credit, 3
Professor MACKIMMIE and Assistant Professor CALDWELL.

52. II. GOVERNMENT. — For juniors and seniors. Forms and methods of the governments of Europe; historic types and theories of government; progress and problems of democracy, and new reform movements in organization and administration; new tendencies towards social legislation and extension of governmental control.
3 class hours. Credit, 3
11:00-11:50 M. W. F. Professor MACKIMMIE.

53. I. EUROPE FROM 1500 to 1830. — For juniors and seniors. The political and social history of the principal countries of Europe from 1500 to 1830. Offered in 1938-39; thereafter discontinued.
3 class hours. Credit, 3
10:00-10:50 Tu. Th., 1:55-2:40 M. Professor MACKIMMIE.

54. II. EUROPE SINCE 1830. — For juniors and seniors. The rise of nationalism and imperialism; the unification of Italy and of Germany; the Third French Republic; European expansion; the Russo-Japanese War; the World War. While this course is a continuation of Course 53 it is complete in itself and may be elected by those who have had

history training. Its aim is to provide a basis for an understanding of present-day conditions. Offered in 1938-39; thereafter discontinued.
3 class hours. Credit, 3.
10:00-10:50 Tu. Th., 1:55-2:40 M. Professor MACHIMMIE.

59. I. 60. II. HISTORY OF THE UNITED STATES. — For juniors and seniors. Emphasis on westward expansion, social and economic change as factors influencing political development. Either semester may be elected independently. Offered in 1939-40 and thereafter.
3 class hours. Credit, 3.
Assistant Professor CARY.

61. I. ANCIENT GREEK HISTORY (1939-40). — For juniors and seniors. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor MACKIMMIE.

63. I. ANCIENT ROMAN HISTORY (1938-39). — For juniors and seniors. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor MACKIMMIE.

65. I. NINETEENTH CENTURY ENGLAND (1939-40). — For juniors and seniors. Victorian society and ideals; Industrial Revolution and its effects; growth of democracy. Emphasis on social conditions and thought movements. Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor CALDWELL.
Prerequisite, History 32 or 54.

67. I. STUART ENGLAND (1938-39). — For juniors and seniors. The development of limited monarchy is treated, but particular emphasis is placed on social, religious, and intellectual aspects of English life in the period. Wide reading in contemporary sources. Given in alternate years.
3 class hours. Credit, 3.
11:00-11:50 M. W. F. Assistant Professor CALDWELL.
Prerequisite, History 31 or 32.

69. I. EUROPE, 1870-1914. — For juniors and seniors. Internal developments of the principal countries, including political and economic changes, social unrest, and intellectual currents; the development of imperialism; a detailed study of conditions and diplomacy which led to the World War.
3 class hours. Credit, 3.
Assistant Professor CALDWELL.

70. II. EUROPE SINCE 1914. — For juniors and seniors. A continuation of History 69, but may be elected independently. The World War and post-war developments in the various countries. Emphasis on international relations.
3 class hours. Credit, 3.
Assistant Professor CALDWELL.

75. I. MEDIEVAL EUROPE. — For seniors only. Europe from the barbarian invasions to the Renaissance. Social and economic conditions, development of national monarchies, the Church and religion, medieval culture.
3 class hours. Credit, 3.
1:00-1:45 M. W. F. Assistant Professor CARY.

76. II. HISTORY OF THE RENAISSANCE. — For seniors only. The later Middle Ages; the Church at the height of power; the rise of nationalities; the Italian towns; the New Learning and its relation to art, science, invention, geographical discoveries; spread and effects of the Renaissance.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor MACKIMMIE.

82. II. Problems in American History. — For seniors only. A course for those who wish advanced work. Selected problems will be investigated through the study of source material and extensive reading in secondary literature.
3 class hours. Credit, 3.
Assistant Professor Cary.

Religion.

Elective Courses.

55. I. The History of Religions. — For juniors and seniors. Primitive religions, Hinduism, Buddhism, Mohammedanism, and Christianity. Consideration will be given to the application of the material of the course to current religious problems.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Dr. Williams.

56. II. The Literature of the Bible. — For juniors and seniors. An introduction to the literature and teachings of the Old and New Testaments.
3 class hours. Credit, 3
8:00-8:50 M. W. F. Dr. Williams.

58. II. The Problems of Religion. — For juniors and seniors. The field of this course is that of the philosophy of religion. However, no attempt will be made to cover all the problems of this discipline. Only those problems will be considered which the students electing the course desire to have considered.
2 class hours. Credit, 2
Dr. Williams.

Sociology.

Elective Courses.

28. II. Elements of Sociology. — For sophomores; others admitted by permission of instructor. An outline of the social order, and of the individual considered as a member of his various groups.
3 class hours. Credit, 3
10:00-10:50 M. W. F., or 1:55-2:40 M. W. F.
Assistant Professor Cutler.

51. I. 52. II. Systematic Sociology. — For juniors; seniors may elect. A study and classification of the uniformities observable in human social behavior, with practical application of the findings; phases of social theory are defined; distinctive teachings of rural sociology are emphasized. These courses are sequential, but may be elected independently.
3 class hours. Credit, 3
11:00-11:50 M. W. F. Assistant Professor Cutler.

53. I. An Introductory Study of Culture and Anthropology. — For juniors; seniors may elect. A non-technical sociological study of man in the prehistoric periods.
3 class hours. Credit, 3
9:00-9:50 M. W. F. Assistant Professor Cutler.

54. II. Civilization. — For seniors; juniors may elect. A sociological study of man in the successive historical periods; influential factors in American life are analyzed.
3 class hours. Credit, 3
9:00-9:50 M. W. F. Assistant Professor Cutler.

75. I. Problems of Social Reform. — For seniors; juniors may elect. A study of abuses affecting the home, recreation, race, business, industry, farming, family welfare, public health, government, international relations, mental disease, and crime; the charitable and correctional institu

tions of Massachusetts as agencies of reform receive special attention; social case work is explained.

3 class hours. Credit, 3.
10:00-10:50 M. W. F. Assistant Professor CUTLER.

77. I. SOCIOLOGICAL RESEARCH AND FIELD WORK. — For seniors; juniors may elect. A study of the methods of research employed by sociologists and of the logical and mathematical analysis to which the latter subject their findings; students, under direction of the instructor, analyze and organize such sociological knowledge as they acquire through their own social service experience, and include all in a comprehensive report; projects must be approved in advance by the instructor.

6 laboratory hours, credit, 3.
Hours by arrangement. Assistant Professor CUTLER.
Prerequisite, Sociology 28, or the consent of the instructor.

79. I. 80. II. SEMINAR. — Enrolment is open to graduate students, and seniors specializing in social science who are qualified. (Course 79) A study of utopias in literature and in fact. (Course 80) Panama and Puerto Rico sociologically. These courses are sequential but may be elected independently.

2 class hours. Credit, 2.
Hours by arrangement. Assistant Professor CUTLER.

84. II. CONSERVATION OF THE FAMILY. — For seniors. A study of some of the modern problems in family life; ways in which an individual and society can help to conserve the family; some hindrances to normal family life. This course aims to develop an intelligent social consciousness and a sense of individual responsibility in family relationships.

3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor SKINNER.

RECREATIONAL PLANNING.

62. II. 63. I. PUBLIC RELATIONS IN RECREATIONAL PLANNING. — A year course beginning in the second semester of junior year and continuing through the first semester of senior year. Designed for students specializing in Recreational Planning; others may elect only by special arrangement with the adviser in Recreational Planning. A course in public contacts designed to bring to the attention of the student those persons and agencies with which contact should be made if one is to succeed in recreational work. Surveys, appraisals, co-ordination, national and regional organizations, community recreation councils, training institutes, community planning and personnel problems are some of the factors to be considered. Projects for investigation will be assigned to each student. Credit, 2.
2 class hours. Dr. VINAL.

Languages and Literature.

Professor RAND, Professor JULIAN, Professor PRINCE, Associate Professor GODING, Associate Professor FRAKER, Assistant Professor GOLDBERG, Assistant Professor TROY, Assistant Professor ELLERT, Dr. HELMING, Mr. STRATTON,* Mr. LYLE,* Miss HORRIGAN, Mr. DOW, Mr. DUBOIS, Mr. ALVIANI, Mr. RILEY, Mr. VARLEY, Miss BROUILLET.

The courses in English are intended to enable students to express themselves effectively and to appreciate the ideals of English-speaking people throughout their history; those in French, Spanish, and German to give practical knowledge of these languages for the purpose of wider reading and research, leading to a better understanding of the art and the science and the peoples concerned; those in Latin to provide some background for students who have missed it in secondary school and a review for students who anticipate a further use of the language after graduation; those in music to furnish in a non-technical way an understanding of the history of music and its interpretation.

* Absent on leave for the year 1938-39.

English.

Required Courses.

1. I. 2. II. English Composition.— For freshmen. Intended to teach straight thinking, sound structure, clear and correct expression. Lectures, recitations, theme writing, and conferences.
3 class hours. Credit, 3.
Professors Prince and Rand, Assistant Professors Goldberg and Troy, Dr. Helming, Miss Horrigan, Mr. Dubois, Mr. Varley.

25. I. 26. II. A Survey of English Literature. — For sophomores. A general reading course, from the beginning of English literature to the end of the Nineteenth Century.
2 class hours. Credit, 2.
Professors Prince and Rand, Assistant Professors Goldberg and Troy, Dr. Helming, Miss Horrigan, Mr. Dubois.

29. I. 30. II. Public Speaking. — For sophomores. The purpose of the course is to teach, by means of practice in the composition, memorization and delivery of short speeches, an effective, confident, and clearly enunciated presentation.
1 class hour. Credit, 1
Mr. Dow, Miss Horrigan, Mr. Varley.

Elective Courses.

50. II. Chaucer (1939-40). — For juniors and seniors. Reading of the principal works of Chaucer; a study of Chaucer's development as a creative artist; an attempt to appreciate his humanism. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor Prince.

52. II. The Renaissance in England. — For juniors and seniors. A study of various aspects of the Renaissance as revealed in such writers as Spenser, Bacon, Sir Thomas Browne, Burton, and Hobbes. Special emphasis is given to Spenser's *Faerie Queene.*
3 class hours. Credit, 3
11:00-11:50 M. W. F. Assistant Professor Troy.

54. II. The Renaissance in England (1938-39). — For juniors and seniors. A study of the chief non-dramatic poets from Sidney and the "Metaphysicals", chiefly Donne, through Milton. Given in alternate years
3 class hours. Credit, 3
9:00-9:50 Tu. Th. S. Assistant Professor Goldberg.

55. I. Shakespeare. — For juniors and seniors. This course is based upon the reading of about thirty of Shakespeare's plays, and attempts both to indicate the evolution of the dramatist and to emphasize the various phases of his art.
3 class hours. Credit, 3
8:00-8:50 Tu. Th. S. Professor Rand.

57. I. Elizabethan Dramatists. — For juniors and seniors. A study of Elizabethan Drama, exclusive of Shakespeare, with special consideration of the plays of such men as Lyly, Peele, Greene, Kyd, Marlowe, Jonson, Beaumont, Fletcher, Webster, Massinger.
3 class hours. Credit, 3
10:00-10:50 M. W. F. Professor Prince.

59. I. English Prose of the Eighteenth Century (1939-40). — For juniors and seniors. A brief exposition of the thinking of the period in philosophy, government, and criticism is followed by a study of essayists and letter writers from Defoe to Godwin. Given in alternate years.
3 class hours. Credit, 3
12:00-12:50 M. W. F. Professor Prince.

60. II. AMERICAN LITERATURE (1938-39). — For juniors and seniors. A course in the Chief American writers, among those studied being Irving, Cooper, Melville, Hawthorne, Emerson, Freneau, Bryant, Poe, Longfellow, and Whitman. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor PRINCE.

61. I. ROMANTIC POETRY (1938-39). — For juniors and seniors. A study chiefly in the beginning of Romanticism in English poetry as found in the work of Collins, Gray, Burns, and Blake, with considerable attention to the culmination of Romanticism in the poetry of Shelley and Keats. Given in alternate years.
3 class hours. Credit, 3.
12:00-12:50 M. W. F. Professor PRINCE.

62. II. ROMANTIC POETRY (1938-39). — For juniors and seniors. A contrasting study of Byron and the Lake Poets, and in some ways a continuation of Course 61. Given in alternate years.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor RAND.

64. II. VICTORIAN POETRY (1939-40). — For juniors and seniors. A study of the Pre-Raphaelites, Tennyson, and Browning. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Professor RAND.

65. I. ENGLISH PROSE WRITERS OF THE NINETEENTH CENTURY. — For juniors and seniors. A study of the Chief Romantic and Victorian prose writers, especially Coleridge, Hazlitt, Carlyle, Newman, Ruskin, and Arnold.
3 class hours. Credit, 3.
9:00-9:50 Tu. Th. S. Assistant Professor GOLDBERG.

66. II. MODERN POETRY (1939-40). — For juniors and seniors. This course attempts to trace the spirit of twentieth century poetry from such authors as Hardy, Whitman, and Emily Dickinson to those of the present day. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Professor RAND.

68. II. MODERN DRAMA (1938-39). — For juniors and seniors. This course traces the development of English drama from the time of Ibsen to the present day. Its purpose is to impart an intelligent and sympathetic interest in the theatre of the twentieth century. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Professor RAND.

70. II. ENGLISH PROSE FICTION. — For juniors and seniors. A course of lectures and reading designed to illustrate the development of English prose fiction, with emphasis upon the great novels of the eighteenth and nineteenth centuries.
3 class hours. Credit, 3.
(1938-39) 8:00-8:50 M. W. F.; (1939-40) 9:00-9:50 M. W. F.
Dr. HELMING.

71. I. BIOGRAPHY (1938-39). — For juniors and seniors. Lectures on the history of biography as a literary type; reading and discussion of leading biographers from Boswell to Maurois, with special emphasis upon the development of modern biographical method. Given in alternate years.
3 class hours. Credit, 3.
8:00-8:50 M. W. F. Dr. HELMING.

72. II. AN INTRODUCTION TO LITERARY CRITICISM (1939-40). — For juniors and seniors. A study of major critical attitudes and principles,

in relationship to philosophic background and immediate application Designed for students concentrating in languages and literature. Given in alternate years.
3 class hours. Credit, 3
9:00-9:50 Tu. Th. S. Assistant Professor GOLDBERG.

81. I. CREATIVE WRITING. — For juniors and seniors. Advanced work in writing based upon specimens by authors of established reputation and upon the personal experience of the student.
3 class hours. Credit, 3
9:00-9:50 M. W. F. Professor RAND (1938-39), Dr. HELMING (1939-40) Assistant Professor TROY (yearly).

83. I. LIBRARY RESEARCH (1939-40). — For juniors and seniors. Each student makes a considerable investigation of a subject of his own selection. An orderly accumulation of material is followed by a formal interpretation of its significance. Given in alternate years.
3 class hours. Credit, 3
8:00-8:50 M. W. F. Professor RAND.

90. I and II. EXTEMPORE SPEECH. — For juniors and seniors. Theory and practice in professional and business speeches. Treatment is modern, practical, and psychological. Registration limited to fourteen.
3 class hours. Credit, 3
11:00-11:50 M. W. F. Mr. DOW.

92. II. ARGUMENTATION AND ORATORY. — For juniors and seniors. It presents the fundamental principles of argumentation with the principle and the practice of formal oratory, prescribing the preparation and delivery of one original oration, and reading in oratory. It is recommended for those who desire to enter the intercollegiate debates or the Flint Contest.
3 class hours. Credit, 3
10:00-10:50 M. W. F. Professor PRINCE.

RECREATIONAL PLANNING.

89. I and II. DRAMATIC PRODUCTION. — A seminar course, open only to students specializing in Recreational Leadership who have been recommended by their special adviser and who are also taking English 90, 54 or 55, and 68.
Hours by arrangement. Credit,
Professor RAND.

FRENCH.

Elective Courses.

1. I. 2. II. ELEMENTARY FRENCH. — For freshmen; sophomores, juniors, and seniors may elect. The essentials of grammar are rapidly taught and will be accompanied by as much reading as possible. No credit in this course may be applied toward a degree, except upon special recommendation from the Dean, until the close of the second semester.
3 class hours. Credit,
Associate Professors FRAKER and GODING.

5. I. 6. II. INTERMEDIATE FRENCH.— For freshmen and sophomores, juniors and seniors may elect. Grammar review and composition. Training for rapid reading. The reading of short stories, novels, and plays; selected readings from periodicals and scientific texts in the library.
3 class hours. Credit,
Associate Professors FRAKER and GODING.
Prerequisites, French 1 and 2 or their equivalent.

7. I. 8. II. FRENCH SURVEY. — For freshmen and sophomores; juniors and seniors may elect. A general survey of the history of French

literature and the development of French culture, with representative works of the important periods.
3 class hours. Credit, 3.
Associate Professors FRAKER and GODING
Prerequisites, French 5 and 6 or their equivalent.

29. I. 30. II. FRENCH CLASSICISM (1939-40). Alternate with Courses 31. I and 32. II. — For sophomores; juniors and seniors may elect. A survey of the Classic period, with readings from representative works.
3 class hours. Credit, 3.
1:55-2:40 M. W. F. Associate Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

31. I. FRENCH ROMANTICISM (1938-39). Alternates with Course 29.— For sophomores; juniors and seniors may elect. A detailed study of the Romantic period. Readings from Hugo, de Vigny, Lamartine, de Musset, and others. The influence of English, German, and Italian literature is stressed.
3 class hours. Credit, 3.
1:55-2:40 M. W. F. Associate Professor GODING.
Prerequisites, French 7 and 8 or their equivalent.

32. II. FRENCH REALISM (1938-39). Alternates with Course 30. — For sophomores; juniors and seniors may elect. A detailed study of the Realistic period and the modern writers. Readings from Balzac, Flaubert, Stendahl, Loti, Daudet, Anatole France, and others.
3 class hours. Credit, 3.
1:55-2:40 M. W. F. Associate Professor GODING.
Prerequisite, French 31.

71. I. VOLTAIRE (1938-30). Alternates with Course 79. — For juniors and seniors. A study of the eighteenth century through the life and works of Voltaire.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Associate Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

72. II. FRENCH LYRICISM (1938-39). Alternates with Course 80.— For juniors and seniors. A study of the French lyric poets, including excerpts in modern translation from the Middle Ages and from the various modern movements through the nineteenth century. Collateral readings and reports.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Associate Professor FRAKER.
Prerequisites, French 7 and 8 or their equivalent.

79. I. BALZAC (1939-40). Alternates with Course 71. — For juniors and seniors. A study of the life, works, and ideas of Balzac based upon a careful reading of about fifteen of his most important novels.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Associate Professor GODING.
Prerequisites, French 7 and 8 or their equivalent.

80. II. ADVANCED GRAMMAR AND COMPOSITION (1939-40). Alternates with Course 72. — For seniors; juniors may elect with the consent of the instructor. A thorough review of grammar, pronunciation, and the phonetic method. The course also includes practice teachings and outside reading on methods of teaching French.
3 class hours. Credit, 3.
8:00-8:50 Tu. Th. S. Associate Professor GODING.

SPANISH.

Elective Courses.

51. I. 52. II. ELEMENTARY SPANISH. — For juniors and seniors; open

to other students upon arrangement. Grammar, exercises in compositio and conversation, reading of selected short stories. No credits in thi course may be applied toward a degree, except upon special recommenda tion from the Dean, until the close of the second semester.
3 class hours. Credit, 3
11:00-11:50 M. W. F. Associate Professor FRAKER.

75. I. 76. II. MODERN SPANISH AUTHORS. — For seniors. Readin from modern Spanish novel and drama; composition; outside reading.
3 class hours. Credit, 3
9:00-9:50 Tu. Th. S. Associate Professor FRAKER.
Prerequisite, Spanish 52.

GERMAN.

Elective Courses.

1. I. 2. II. ELEMENTARY GERMAN. — For freshmen; sophomores, jun iors, and seniors may elect. Grammar, reading, and prose composition Special emphasis is placed on the acquirement of a fundamental ster vocabulary and the ability to understand simple German paragraphs i German. No credits in this course may be applied toward a degree, excep upon special recommendation from the Dean, until the close of the secon semester.
3 class hours. Credit, 3
Professor JULIAN, Assistant Professor ELLERT, and Mr. RILEY.

5. I. 6. II. THE CLASSICAL PERIOD. — For freshmen; sophomore juniors and seniors may elect. Reading and study of some important liter ary productions of the classical period; spoken German; passages of pros and poetry to commit to memory.
3 class hours. Credit, 3
Assistant Professor ELLERT.
Prerequisite, German 25 and 26, or Entrance German.

25. I. 26. II. THE SHORT STORY.— For sophomores; juniors and sen iors may elect. The German short story; the simpler German drama grammar review and advanced prose composition. Simple passages o prose and poetry to commit to memory.
3 class hours. Credit, 3
Assistant Professor ELLERT and Mr. RILEY.
Prerequisites, German 1 and 2.

27. I. 28. II. EARLY GERMAN LITERATURE AND HISTORY.— For soph mores; juniors and seniors may elect. The *Niebelungenlied* and *Parzival* i modern German versions.
3 class hours. Credit,
11:00-11:50 M. W. F. Professor JULIAN.
Prerequisites, German 5 and 6, or 25 and 26.

55. I. 56. II. ADVANCED GERMAN. — For juniors and seniors. Be fore enrolling in this course students should consult the instructor i charge of the course. The "Storm and Stress" period of German litera ture, with study of the early plays of Goethe and Schiller. The Romanti period from Novalis to Heine, with study of poets, dramatists, critics, an philosophers.
3 class hours. Credit, 3
10:00-10:50 Tu. Th. S. Assistant Professor ELLERT.
Prerequisites, German 5 and 6, or 25 and 26.

57. I. 58. II. GOETHE'S FAUST. — For juniors and seniors.
3 class hours. Credit, 3
Professor JULIAN.
Prerequisites, German 5 and 6, or 27 and 28.

79. I. 80. II. CONVERSATIONAL GERMAN. — Open to advanced students in German, by permission of the instructor in charge. Practice in the oral use of German, based on reading material prepared in advance, and dealing with present-day Germany.
2 class hours. Credit, 2.
Hours by arrangements. Professor JULIAN and ————.

81. I. 82. II. SCIENTIFIC GERMAN.— For seniors. Intensive and specialized reading of literature in standard German scientific journals and reference books.
3 class hours. Credit, 3.
9:00-9:50 M. W. F. Professor JULIAN.

LATIN.

Elective Courses.

51. I. 52. II. LATIN. — For juniors and seniors. A course in elementary Latin. No credits in this course may be applied toward a degree, except upon special recommendation from the Dean, until the close of the second semester.
3 class hours. Credit, 3.
Mr. RILEY.

55. I. 56. II. LATIN.— For juniors and seniors who have taken Latin 51 and 52 or two years' work in secondary school. An interpretative survey of classical Latin prose and poetry, providing a grammar review and translation from the prose of Cicero, Livy, and Pliny, and from poetry of Horace, Catullus, and Ovid.
3 class hours. Credit, 3.
Mr. RILEY.

MUSIC.

Elective Courses.

1. I. 2. II. CHORAL SINGING. — For freshmen, sophomores, juniors, and seniors. This course is designed to acquaint the students, through study and performance, with examples of the best choral music of all periods. Admission is by approval of the instructor. This course is recommended for those who desire to prepare themselves for participation in choral services.
2 scheduled hours. Credit, 1.
Mr. ALVIANI.

51. I. HISTORY AND APPRECIATION OF MUSIC. — For juniors and seniors. The Classical School. Works of Bach, Handel, Haydn, and Mozart are performed and studied. Lectures, musical illustrations, and outside readings.
3 scheduled hours. Credit, 2.
11:00-11:50 M. W. F. Associate Professor GODING.

52. II. HISTORY AND APPRECIATION OF MUSIC. — For juniors and seniors. A continuation of Course 51. The Romantic School: Beethoven, Schubert, Weber, Mendelssohn, Schumann, Chopin, Berlioz, Liszt. The Italian, French, and German schools of opera; modern and contemporary composers.
3 scheduled hours. Credit, 2.
11:00-11:50 M. W. F. Associate Professor GODING.
Prerequisite, Music 51.

61. I. 62. II. EVOLUTION OF MODERN MUSIC. — For juniors and seniors. A thorough survey is made of the most important trends and personalities of music, from the earliest times to the present. It is designed to acquaint the student with the background for the understanding of contemporary music, which is treated in detail. Lectures, illustrations, and outside readings.
3 scheduled hours. Credit, 2.
9:00-9:50 M. W. F. Mr. ALVIANI.

75. I. 76. II. HARMONY. — For juniors and seniors. A study of the development of harmonic principles up to the present time. Part-writing for four voices, and harmonic analysis. Emphasis is placed upon ear-training to promote the student's aural imagination and recognition of all material studied. Previous musical experience is desirable, but not required. Course 75 is prerequisite to Course 76.
3 scheduled hours. Credit, 2.
11:00-11:50 Tu., 1:00-1:45 Th., 1 hour by arrangement. Mr. ALVIANI.

DIVISION OF PHYSICAL EDUCATION.

Professor HICKS.

Student Health.

Professor RADCLIFFE, Assistant Professor THOROMAN, Dr. RAKIETEN.

Required Course.

1. I. HYGIENE. — For freshmen. Sections for men meet twice a week for one-half the semester; women meet once a week for the entire semester. Lectures on personal hygiene, including the physiological basis for sound health habits.
(Women) 1:00-1:45 Tu. Credit, 1.
(Men) 1:55-2:40 M. F. for 1st half of semester or 3:45-4:30 Tu., 1:55-2:40 W. for 2d half of semester. Drs. RAKIETEN and THOROMAN.

Physical Education for Men.

Professor GORE, Professor RADCLIFFE, Professor CARAWAY, Assistant Professor DERBY, Assistant Professor BRIGGS, Mr. BALL, Mr. ROGERS, Mr. KAUFFMAN, Mr. FRIGARD.

The work of Physical Education for Men covers the required work in Physical Education the first year; elective work in Team Game Participation the second year, and the opportunity to specialize the last two years either in Physical Education and Teacher Coaching or in the field of Recreation.

Required Courses.

3. I. PHYSICAL EDUCATION. — For freshmen. One hour a week of exposure to carry-over value and life-time sport instruction. The development of recreational aptitudes is stressed. Team Game participation is required. Men will elect two seasonal athletic activities per semester or their equivalent. Special work is required for those freshmen whose physical examinations show that postural corrective work is indicated.
1 class hour. Credit, 1
Mr. KAUFFMAN and the DEPARTMENT.

4. II. PHYSICAL EDUCATION. — For freshmen. The one hour a week requirement of carry-over value and life-time sport instruction and the Team Game participation requirement of two seasonal athletic activities per semester or their equivalent is continued.
1 class hour. Credit, 1
Mr. KAUFFMAN and the DEPARTMENT.

Elective Courses.

23. I. PHYSICAL EDUCATION. — For sophomores. Team Game participation: men may elect two seasonal athletic activities per semester or their equivalent.
Credit,
Hours by arrangement. Mr. KAUFFMAN and the DEPARTMENT.

24. II. PHYSICAL EDUCATION. — For sophomores. Team Game participation: men may elect two seasonal athletic activities per semester or their equivalent.

Credit, 1.

Hours by arrangement. Mr. KAUFFMAN and the DEPARTMENT.

Admission by permission only.

41. I. WINTER SPORTS. — For juniors and seniors. The teaching of winter activities including skiing, skating, the conduct of winter carnivals and winter sport safety, and the design, construction, and maintenance of winter sports facilities.

1 class hours. 1 2-hour laboratory period, credit, 1.
11:00-11:50 Tu.; laboratory hours by arrangement.
Professor GORE, Assistant Professor BRIGGS, and Mr. KAUFFMAN.

42. II. WATER SPORTS. — For juniors and seniors. The teaching of swimming and diving, life-saving and water safety, rowing, canoeing, and fishing.

1 class hour. 2 1-hour laboratory periods, credit, 1.
11:00-11:50 Tu.; laboratory hours by arrangement.
Professor GORE, Assistant Professor BRIGGS, Messrs. ROGERS and KAUFFMAN.

51. I. INTRODUCTORY COURSES FOR TEACHER-COACHES. — For juniors and seniors. This course outlines the coaching of football, soccer, and basketball.

2 class hours 1 2-hour laboratory period, credit, 3.
11:00-11:50 M. F.; 1:00-2:40 W.
Professors CARAWAY, BRIGGS, and Mr. FRIGARD.

52. II. INTRODUCTORY COURSE FOR TEACHER-COACHES. — For juniors and seniors. Continuation of Course 51. This course outlines the coaching of baseball, track and field athletics, and hockey, also athletic pedagogy.

2 class hours. 1 2-hour laboratory period, credit, 3.
11:00-11:50 M. F.; 1.00-2:40 W.
Professor CARAWAY, Assistant Professor DERBY, Mr. BALL.

53. I. PHYSICAL EDUCATION—ELEMENTARY SCHOOLS. — For juniors and seniors. This course includes the objectives, organization, significance, and content of physical education in the grade schools. The course is correlated with the requirements of the State Department of Education.

2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 Tu. Th.; 1:00-2:40 M. Assistant Professor DERBY.

54. II. PHYSICAL EDUCATION—JUNIOR AND SENIOR HIGH SCHOOLS. — For juniors and seniors. This course includes the objectives, significance, organization and content of physical education in junior and senior high school. The course is correlated with the requirements of the State Department of Education.

2 class hours. 1 2-hour laboratory period, credit, 3.
10:00-10:50 Tu. Th.; 1:00-2:40 M. Assistant Professor DERBY.

55. I. HISTORY AND PURPOSES OF PHYSICAL EDUCATION. — For juniors and seniors. A brief study of the history of the development of the various systems of physical education and a study of the aims and ideals of present-day physical education.

2 class hours. Credit, 2.
11:00-11:50 M. W. Professor GORE.

56. II. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION. —For seniors. Considers the organization and administration of a department of physical education.

2 class hours. Credit, 2.
11:00-11:50 M. W. Professor HICKS.

57. I. CAMPING—ACTIVITIES AND SKILLS. — For juniors and seniors. This course covers details of camping techniques from the three-fold angle of organized camp councilor, i.e., as a child counselor, as a general activities counselor, and as a specialty counselor.
2 class hours. 1 2-hour laboratory period, credit, 3.
9:00-9:50 M. W.; laboratory hours by arrangement. Professor GORE.

58. II. CAMPING.—ORGANIZATION AND ADMINISTRATION. — For juniors and seniors. This course includes the history of organized camping, minimum standards of health and safety, the development of camping philosophies, trends, and the camping industry.
2 class hours. 1 2-hour laboratory period, credit, 3.
9:00-9:50 M. W.; laboratory hours by arrangement. Professor GORE.

59. I. SCOUTING ELEMENTS AND PRINCIPLES. — For juniors and seniors. A course in the elements and principles of scoutmastership.
1 class hour. 1 2-hour laboratory period, credit, 2
9:00-9:50 Tu.; laboratory hours by arrangement.
Professor GORE cooperating with Scout Executive, Hampshire-Franklin Council, B.S.A.

71. I. 72. II. SPECIAL PROBLEMS COURSES—PHYSICAL EDUCATION—RECREATION. — For juniors and seniors specializing in physical education or recreation. Presentation and discussion of research work in physical education, recreation, health education or athletics. Each student will make a special study of some phase of physical education, athletics or recreation.
3 class hours. Credit, 3
Class hours by arrangement. Professor GORE and the DEPARTMENT.

73. I. RECREATION—ACTIVITIES AND SKILLS. — For juniors and seniors. A study of recreation techniques and skills required for specialization as recreation planners.
2 class hours. 1 2-hour laboratory period, credit, 3
10:00-10:50 M. W.; laboratory hours by arrangement.
Professor GORE.

74. II. RECREATION—ORGANIZATION AND ADMINISTRATION.— For juniors and seniors. This course considers the necessary elements involved in planning a recreation program including recreational areas and facilities, organization and leadership, and the recreational needs of the public as well as a study of the different agencies functioning in recreation.
2 class hours. 1 2-hour laboratory period, credit, 3
10:00-10:50 M. W.; laboratory hours by arrangement.
Professor GORE.

75. I. HEALTH EDUCATION THEORY AND PRACTICE.— For seniors. This course gives the teaching supervision, and administration of school health programs. It also gives first aid as applied in the home, on the street and on the athletic field. Men who complete this course satisfactorily will receive American Red Cross First Aid Certificates.
1 class hour. 1 2-hour laboratory period, credit, 2
10:00-10:50 F.; laboratory hours by arrangement.
Professors RADCLIFFE and BRIGGS.

77. I. ANATOMY GENERAL. — For juniors. A course in structural human anatomy.
2 class hours. 1 2-hour laboratory period, credit, 3
9:00-9:50 M. F.; 1:00-2:40 W. DR. RADCLIFFE.

78. II. ANATOMY APPLIED. — For juniors. A course aimed to give the anatomical application basal to a thorough understanding of the mechanical problems in apparatus, athletic and corrective exercises.
2 class hours. 1 2-hour laboratory period, credit,
9:00-9:50 M. F.; 1:00-2:40 W. Dr. RADCLIFFE.
Prerequisite, Physical Education 77.

Physical Education for Women.

Miss Blatchford, Miss Callahan.

It is the aim of the department (1) to establish habits of regular exercise; (2) to secure a uniform development and an efficient use of the body; (3) to encourage participation in recreative activities which will be healthful and enjoyable in later life as well as in college.

Required Courses.

7. I. Physical Education. — For freshmen. Outdoor season: archery, games, soccer, field hockey, special gymnastics; indoor season: badminton, basketball, folk and tap dancing (rhythmic dances), special gymnastics, swimming, volley ball, games.

3 scheduled hours, credit, 2.
The Department.

8. II. Physical Education. — For freshmen. Indoor season: badminton, basket-ball, folk and tap dancing, special gymnastics, swimming, volley ball, games; outdoor season: archery, tennis, golf, special gymnastics.

3 scheduled hours, credit, 2.
The Department.

27. I. Physical Education. — For sophomores. Outdoor season: archery, tennis, soccer, field hockey, special gymnastics; indoor season: badminton, basketball, dancing, special gymnastics, swimming.

3 scheduled hours, credit, 2.
The Department.

28. II. Physical Education. —For sophomores. Indoor season: badminton, basket-ball, dancing, special gymnastics, swimming; outdoor season: archery, tennis, golf, special gymnastics.

3 scheduled hours, credit, 2.
The Department.

61. I. 62. II. Recreation. — For juniors. Outdoor season: sports and games depending upon the physical condition and needs of the students; indoor season: modern dance; tap dancing, badminton or swimming. Those electing the modern dance must elect the course for the entire year.

2 1-hour laboratory periods, credit, 1.
11:00-11:50 Tu., 1:00-1:45 Th. The Department.

81. I. 82. II. Recreation. — For seniors. Outdoor season: sports and games for physical benefits and further development of skill and for social contacts; indoor season: modern dance; tap dancing, badminton or swimming. Those electing the modern dance must elect the course for the entire year.

2 1-hour laboratory periods, credit, 1.
11:00-11:50 Tu., 1:00-1:45 Th. The Department.

Department of Military Science and Tactics.

Lieutenant Colonel Horace T. Aplington, Cav., U.S.A.; Major Leo B. Conner, Cav., U.S.A.; Major Harold P. Stewart, Cav., U.S.A.; Master Sergeant Jonathan Madden, U.S.A. Retired; Master Sergeant Roy Tanner, Cav., U.S.A.; Staff Sergeant Frank Cronk, Cav., U.S.A.; and a detachment of enlisted men of the United States Army.

Under act of Congress, July 2, 1862, the College was required to provide a two-year course in military instruction under a regular army officer. All able-bodied four-year male students are required to take this course. Under act of Congress, June 3, 1916, as amended by act of Congress, September 8, 1916, there was established at this college in April, 1917, an infantry unit of the Reserve Officers' Training Corps. Following the World War and an act of Congress, July 19, 1918, the Reserve Officers'

Training Corps has been in operation under the regulation of the War Department, administered by the president of the college and the professor of military science and tactics. Beginning with the fall term, 1920-21, the infantry unit of the Reserve Officers' Training Corps was converted into a cavalry unit.

The primary object of the Reserve Officers' Training Corps is to provide systematic military training at civil educational institutions, for the ultimate purpose of qualifying selected students of such institutions as reserve officers in the military forces of the United States. It is intended to attain this object during the time the students are pursuing their general or professional studies, with the least practicable interference with their civil careers, by employing methods designed to fit men physically, mentally, and morally for pursuits of peace as well as war.

The course for cavalry units of the Reserve Officers' Training Corps includes theoretical and practical instruction in all phases of cavalry work, so distributed over the four-year college course as to qualify students at the end of the freshman year as privates of cavalry, at the end of the sophomore year as non-commissioned officers of cavalry, and upon graduation as reserve officers. Forty per cent of the course is classroom work. All practical instruction is out of doors.

All male candidates for a degree in the four-year course must take at least three hours a week of military training for two years. Students who are approved by the president and the professor of military science and tactics may take the advanced course in their junior and senior years if they so elect. The advanced course consists of at least five hours per week and a summer camp of about six weeks during the summer vacation between the junior and senior years. Students taking this course are paid by the Federal Government at a rate to be fixed by the Secretary of War, not to exceed the value of the army ration. The rate now is twenty-five cents per diem amounting for the two years to $146.25 to which should be added pay at camp of $29.40 making a cash value of $175.65. Advanced students are required to equip themselves with riding boots but remainder of uniform is furnished by the government and becomes the property of the student upon graduation. Students graduating in the advanced course are eligible for commissions in the Officers' Reserve Corps, but are not required to accept such commissions if offered.

Uniforms for freshmen and sophomores are supplied by the government without cost except for boots. A deposit of $20 is required to insure return of uniform articles. In addition, the student is required to purchase one pair of boots through the Military Department at a cost of about $4.00. The uniforms for the juniors and seniors (advanced course) are similar to U. S. army officers' uniforms tailor-made for the individual student. A deposit of thirty-five dollars for this uniform is required at the beginning of the junior year.

Required Courses.

1. I. 2. II. For freshmen. Theoretical and practical instruction in dismounted drill, rifle marksmanship, map reading, sanitation and first aid, organization, military discipline and courtesies, military history and policy, obligations of citizenship.

3 scheduled hours, credit, 2

9:00-9:50 or 10:00-10:50 Tu. Th. S., or 11:00-11:50 Tu. S.,
1:00-1:45 Th. ARMY INSTRUCTORS.

25. I. 26. II. For sophomores. Theoretical and practical instruction in mounted cavalry drill and horsemanship, cavalry weapons, musketry scouting and patrolling, combat principles of rifle and light machine gun squad and platoon, cavalry marches and camps.

3 scheduled hours, credit, 2

9:00-9:50 or 10:00-10:50 or 11:00-11:50 M. W. F., or
9:00-9:50 Tu. Th. S. ARMY INSTRUCTORS.

Elective Courses.

51. I. 52. II. For juniors. Aerial photograph reading, administration, care of animals and stable management, horsemanship, instructional methods, mechanization, cavalry weapons, combat training.

5 scheduled hours, credit, 2.

8:00-8:50 M. W. F., 11:00-11:50 Tu., 1:00-1:45 Th.

ARMY INSTRUCTORS.

75. I. 76. II. For seniors. Military history and policy, military law; property, emergency procurement, and funds; O. R. C. regulations, horsemanship, mechanization, combat training.

5 scheduled hours, credit, 3.

8:00-8:50 M. W. F., 11:00-11:50 Tu., 1:00-1:45 Th.

ARMY INSTRUCTORS.

The Graduate School

F. J. SIEVERS, *Director.*

Graduate courses leading to advanced degrees have been available at the College practically since its establishment. At the beginning these courses leading to the degrees of master of science and doctor of philosophy were confined almost entirely to the offerings in the field of science. Since then the work has expanded until now a major toward either degree may be selected in any of the following subjects:

Agricultural Economics and Farm Management
Agronomy
Bacteriology
Botany
Chemistry
Economics
Entomology
Food Technology
Pomology
Poultry Science

The following departments offer major work toward a master of science degree only:

Animal Husbandry
Dairy Industry
Education
Floriculture
Home Economics
Horticultural Manufactures
Olericulture
Psychology

The degree of master of landscape architecture is granted to students completing the two years' graduate work offered by the department of landscape architecture; while students taking the equivalent of one year's graduate work in that major may be granted the degree of bachelor of landscape architecture.

Several other departments in the institution, while not regularly organized for major work in the Graduate School, do, nevertheless, offer courses which may be selected for minor credit. These are:

English
French
Forestry
Geology
German
History
Mathematics
Philosophy
Physical Education
Physics
Physiology
Veterinary Science
Zoölogy

The general requirements of the Graduate School regarding entrance, residence, credits, tuition, fees, etc., together with specific information concerning details of interest to prospective students are set down in a separate bulletin which may be obtained upon request from the Director's Office.

The Summer School

For thirty years the College has conducted a summer session, starting at first with a four-weeks' program consisting largely of teacher training and adult courses in nature study, vegetable gardening, fruit growing, poultry raising, and ornamental gardening, all organized without reference to credits or degree. Gradually the emphasis on such work changed and the need for more professional courses of college grade has resulted since 1924 in a six-weeks' session offering a well-balanced program of credit courses. These are arranged to assist (1) superintendents, principals, and teachers, connected with high or elementary schools who desire advanced instruction either with or without relation to academic credits; (2) classroom teachers who seek to prepare themselves more effectively in their special studies; (3) college undergraduates who wish to satisfy deficiencies or secure courses not otherwise available; and (4) any adult person who finds courses of special interest and aid for leisure or livelihood.

Fees and living expenses are very moderate so that many people arrange their vacation periods to include the summer session. A carefully planned program of entertainment including instruction in such sports as tennis, badminton, and archery, with hiking and picnics, swimming and golf, provides recreation for all.

Admission.

There are no formal examinations for admission to the Summer School. Undergraduate students are admitted to such courses as their preparation justifies. Admission to the Graduate School will be granted to graduates of Massachusetts State College and to graduates of other institutions having substantially equivalent requirements for the bachelor's degree.

The following courses were offered in the 1938 session and illustrate the type of program at present available.

*Fundamentals of Nutrition
*Genetics and Eugenics
General Chemistry
Qualitative Chemistry
Introduction to Political Science
*State and Municipal Government
*Current Teacher Problems
*The School in Society
*The Evolving Objective Test
*Secondary School Administration
*Problems in Vocational Teaching
*Principles of Vocational Teaching
*American Literature 1798-1860
*Major Romantic Poets
Public Speaking
Speech Fundamentals
*History of the United States 1763-1865
*International Relations Since the World War
Modern European History 1760-1938
*Government of the United States
Food Preservation
*Mathematics of Finance
Solid Geometry and Mensuration
Recreation Activities
*Ethics
*Psychology of Guidance

For further information, write or apply to Roland H. Verbeck, Director of Short Courses, Massachusetts State College, Amherst, Mass.

For information concerning graduate work in the summer school, write or apply to Fred J. Sievers, Director of the Graduate School, Massachusetts State College, Amherst, Mass.

* Indicates courses carrying graduate credit.

Non-Degree Courses of Instruction

THE STOCKBRIDGE SCHOOL OF AGRICULTURE.

General Information.

The Stockbridge School of Agriculture was organized in 1918, under the name of "The Two Year Course in Practical Agriculture," for the purpose of meeting the demand for a short course in agriculture which might be taken by students who could not satisfy college entrance requirements or who, for one reason or another, were unable to take the college course. In 1928 the School was given its present name in honor of Levi Stockbridge, first professor of agriculture in the College and its fifth president.

This course trains men and women for the practice of farming or associated agricultural industries. Graduation from the course does not fulfill the requirements for entrance into the degree course nor are credits earned during the course transferable regularly toward credit for a degree.

As the course is now organized, students may specialize in any one of nine vocations: animal husbandry, dairy manufactures, floriculture, horticulture, fruit growing, poultry husbandry, vegetable gardening, wildlife management, or foods and food processing for hotel and restaurant training. Specialization in a vocation does not prevent students from securing a general working knowledge of other subjects. The Stockbridge School will appeal not only to young men and women, but also to men and women of mature years and practical experience who wish to know more about the business of farming or associated industries. The School is not intended for students enrolled in a high school; such students should complete their high school course before seeking admission.

Since its organization at the request of the Massachusetts Legislature, the school has registered over 2,000 students, graduated nineteen classes numbering more than 1400 members, and enrolled for the last school year (1937-38) 281 young men and women.

The largest number of students come from Massachusetts, but all the New England States are usually represented in the student body.

The value of this kind of concentrated, technical schooling, aiming directly toward preparation for a definite field of work, is amply demonstrated by the useful careers of our graduates.

Entrance Requirements

Applicants for admission must be at least 17 years old and must have completed at least an elementary school course or its equivalent. Before being enrolled for the work of the second year, students must have completed six months' practical training approved by the Director of Placement.

Students who are already enrolled in high schools and who wish to enter the School before the completion of the high school course should bring a statement, either from the principal of the high school or from the parent or guardian, requesting enrollment.

Instruction

The instruction is given by the regular faculty by means of classroom teaching, laboratory exercises, and practical work. The work of the classroom is supplemented by demonstration work in the laboratory. dairy, greenhouse, orchards and stables. The course is designed to offer plain, practical, direct information, and to establish the underlying reasons for, as well as methods employed in, the various operations.

Credit and Diploma

In order to obtain a diploma, the student must complete satisfactorily all the work required in the vocational course which he has selected. This course consists of six months of class and laboratory work from October to April followed by six months of practical experience on a job in line with the major course selected. The second year continues from October to June.

No student failing to meet the requirements of his six months' summer training can be enrolled for the second year since the placement training is an absolutely necessary prerequisite.

Graduates of county schools of agriculture or of agricultural departments of high schools in the state may complete the course for a diploma in one year in certain courses, if they are recommended by the director of the county school, or by the instructor in charge of the department of agriculture in the high school.

Special Catalogue.

For a complete catalogue of the Stockbridge School of Agriculture, containing an application blank, write or apply to Director Roland H. Verbeck, Massachusetts State College, Amherst, Mass.

THE WINTER SCHOOL

Short Courses are based on the idea that the motive which inspires study is the most significant factor in study itself, and that this motive rises when the student himself realizes he faces a problem that calls for a solution. Therefore, there is no age limit. Enrolled in short courses are found the young and the old, the experienced and the inexperienced, the theoretical and the practical. In this grouping there is a value, since students learn from each other as well as from the instructors. Practically all Short Course students intend to make a direct application of the knowledge gained. Hence the aim of Short Course work is to offer the largest amount of information and training in agricultural and horticultural lines in the shortest possible time. During the past thirty years Short Courses have served hundreds of students in this Commonwealth, and the demand for these courses in recent years has steadily continued.

The Winter School has been established for a number of years at the College, and has proved to be very popular.

Instruction in the following courses will be offered this year:

(1) Nine Weeks' Course in Poultry Raising. November 14 to January 27.
(2) Ten Weeks' Course for Greenkeepers. January 3 to March 13.
(3) Ten Weeks' Advanced Course for Greenkeepers. January 3 to March 13.
(4) Ten Weeks' Practical and Scientific Course for Florists. Next offered in 1940.
(5) Two Weeks' Course in Dairy Bacteriology. January 3 to January 14.
(6) One Week Course in Milk and Cream Testing; Analyzing and Inspecting Milk Products. January 16 to January 21.
(7) One Week Course in Milk Plant Operation and Manufacture of Surplus Milk Products. January 23 to January 28.
(8) One Week Course in Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes, and Freezing. January 30 to February 4.
(9) One Week Course in Ice Cream Making for Experienced Men. February 6 to February 11.
(10) Five-day Courses for Tree Wardens and Town Foresters. Survey Course, March 13 to March 18; Advanced Course, March 20 to March 25.

During the one week the student devotes all of his time to the work o the special course in which he has enrolled. The instruction lasts through out the day from 8 to 5. These courses meet a very definite need in th State for those who wish instruction, but who cannot attend for a longe period of time, and who did not wish to take other subjects.

Tuition and Fees

	Tuition	*Registration*	*Healt*
Greenkeepers' Course	$10.00	$5.00	$1.50
Advanced Greenkeepers' Course	10.00	5.00	1.50
Practical and Scientific Course for Florists	10.00	5.00	1.50
Poultry Course	9.00	5.00	1.50
Dairy Bacteriology Course	2.00	2.00	Non
Dairy Courses, each	2.00	2.00	Non
Tree Wardens' and Town Foresters' Course	2.00	2.00	Non

STANDING COMMITTEES

1938-1939.

Academic Activities Board: CHAIRMAN MACHMER, GLICK, RAND.

Admission and Scholarship: CHAIRMAN MACHMER, ALEXANDER, GLATFELTER, JULIAN, LANPHEAR, NEET, RADCLIFFE, SKINNER, TORREY.

Athletic Board: CHAIRMAN MACHMER, CARPENTER, GRAYSON, MUNSON.

Campus Planning Council: CHAIRMAN BLUNDELL, GUNNESS, KENNEY, MARSTON, SIEVERS, VANMETER, WAUGH.

Commencement: CHAIRMAN POWERS, ALEXANDER, DORAN, EMERY, FELLERS, GODING, HAWLEY, HELMING, HORRIGAN, KENNEY.

Convention Committee: CHAIRMAN CARPENTER, ARMSTRONG, BROADFOOT, CHADWICK, COOLIDGE, DERBY, EMERY, R. C. FOLEY, ROBERTS, FLOWER.

Course of Study: CHAIRMAN MACHMER, M. BRIGGS, GAMBLE, GOLDBERG, GORE, HOLDSWORTH, LINDSEY, MACK, MARKUSON, PURVIS, RITCHIE, WARFEL.

Discipline: CHAIRMAN MACHMER, BLATCHFORD, GLATFELTER, GORE, GUNNESS, HARRISON, SEREX.

Exhibits: CHAIRMAN ROBERTSON, BLUNDELL, CALLAHAN, A. M. DAVIS, W. H. ROSS, F. R. SHAW, VONDELL.

Farm and Home Week: CHAIRMAN CARPENTER, HERR, LINDSEY, LOY, MERRIAM, PARKHURST, RICE, F. R. SHAW, C. L. THAYER, VANMETER.

Fine Arts Council: CHAIRMAN WAUGH, BLATCHFORD, CARY, CLARK, GODING, RAND, SKINNER, WOOD.

Game Management Study: CHAIRMAN TRIPPENSEE, BANTA, FELLERS, MCLAUGHLIN, MUELLER, RICH, VANROEKEL, VINAL.

Graduate School Advisory Committee: CHAIRMAN SIEVERS, BRADLEY, LENTZ, MACHMER, PETERS, VANMETER, WELLES.

Honors: CHAIRMAN LANPHEAR, CANCE, CRAMPTON, FRAKER, GAGE, RICE, WAUGH.

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Memorial Hall Board: CHAIRMAN DORAN, L. E. BALL, EMERY, FESSENDEN, HAYNES, KENNEDY, D. E. ROSS.

Music: CHAIRMAN GODING, ALVIANI, FRAKER, HELMING, WILLIAMS, WOODSIDE.

Publications: CHAIRMAN SIEVERS, HAWLEY, MUNSON, OLESON, RAND, VERBECK.

Recreation Conference Committee: CHAIRMAN VINAL, L. BRIGGS, CHADWICK, DICKINSON, ERICKSON, FLOWER, GORE, GRAYSON, LELAND, MCINTIRE, RICH, ROBERTS, ROGERS, STEWART, TRIPPENSEE, VANMETER, VONDELL.

Recreation Leadership Training: CHAIRMAN FRAKER, ALEXANDER, L. E. BRIGGS, CURTIS, VINAL, *Advisory Members*: GORE, WAUGH.

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Social Union: Chairman Rand, Alviani, Andersen, Dickinson, Ellert, Emery, Erickson, Goding, Helming.

Stockbridge School Advisory Council: Chairman Verbeck, Banta, Barrett, Blundell, Dickinson, Foley, Grayson, Holdsworth, Hubbard, Lindquist, Markuson, Packard, Roberts, Smart, Snyder, C. H. Thayer, Trippensee.

Student Aid: Chairman Grayson, Erickson, Lanphear.

Student Life: Chairman C. L. Thayer, Barrett, M. Briggs, Fraker, Lanphear, Smart.

Summer School: Chairman Verbeck, Cole, Machmer, Rand, Rice, Sievers, Welles.

Special Committees.

Fellowships and Grants for Research: Chairman VanMeter, Cance, Coolidge, Osmun, Rice, Ritchie.

Nature School: Chairman Vinal, Alexander, Blundell, L. Briggs, W. H. Davis, Farley, Fraker, Fuller, Gore, Holdsworth, Loy, Sweetman, C. L. Thayer, Trippensee, VanMeter.

Teacher Training: Chairman Machmer, Caraway, Gore, Hamlin, Lindsey, Neet, Welles.

Students' Major Advisory Committees.

Agriculture: Chairman Rice, Eisenmenger, Frandsen, Gunness, Lindsey, Parkhurst.

Home Economics: Chairman Skinner, M. Briggs, Coolidge, Knowlton, Mitchell.

Horticulture: Chairman VanMeter, Chenoweth, Harrison, Holdsworth, Snyder, C. L. Thayer.

Liberal Arts: Chairman Mackimmie, Cance, Cary, Cutler, Glick, Rand, Welles.

Physical and Biological Sciences: Chairman Osmun, Alexander, Bradley, Gage, Lentz, Moore, Powers, Ritchie.

Physical Education: Chairman Hicks, Caraway, L. Briggs, Derby, Gore, Radcliffe.

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CLIFFORD C. HUBBARD
MRS. ELIZABETH L. MCNAMARA
DAVID J. MALCOLM
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Executive Committee.

NATHANIEL I. BOWDITCH, *Chairman.*
PHILIP F. WHITMORE
JOSEPH W. BARTLETT

[1] The President of the College and the Vice-President of the Board are ex-officio members of each committee.

DEGREES CONFERRED 1938

Doctor of Philosophy (Ph.D.)

Esselen, William Brigham, Jr., B.S., M.S., Massachusetts State College	Millis
Maclinn, Walter Arnold, B.S., M.S., Massachusetts State College	Amherst
Shaw, Mrs. Miriam Morse, B.S., St. Lawrence University, M.S., Massachusetts State College	Amherst

Master of Science (M.S.)

Babcock, Chester Ira, Jr., B.S., Massachusetts State College	Newtonville
Beaudreault, Doris, B.S.E., Westfield State Teachers College	Fairview
Bell, Vernon Adam Veith, B.S., Massachusetts State College	Amherst
Bertrand, Roger Gerard, A.B., Montreal University	Chicopee Falls
Blassberg, Ruth, B.S., Massachusetts State College	Turners Falls
Briggs, Lawrence Elliott, B.S., Massachusetts State College	Amherst
Butler, Malcolm Suffolk, B.S., Massachusetts State College	Saugus
Callahan, Thomas James, B.S., Ithaca College	Dalton
Connor, Daniel Joseph, Jr., A.B., Holy Cross College	South Hadley Falls
Curtis, Lavada, B.S., University of Alabama	Auburn, Ala.
Daniels, Charles Howard, B.S., Massachusetts State College	Melrose
DeAngelus, Angelo Francis, B.S., Roanoke College	Dalton
Ely, Philip Lloyd, B.A., Colby College	Northampton
Emerson, Emery Adams, B.S., Middlebury College	Dalton
Farnsworth, Raymond Bartlett, B.S., Brigham Young University	Enterprise, Utah
French, Chester Leroy, B.S., Massachusetts State College	Greenfield
Frigard, Wilho, B.S., Massachusetts State Colelge	Maynard
Goldfaden, Mildred Florence, B.A., Connecticut College for Women	Norwalk, Conn.
Hager, Elizabeth Warner, B.S., Massachusetts State College	South Deerfield
Hall, Constance Hathaway, B.S., Massachusetts State College	Sharon
Hannum, Calvin Siddell, B.S., Massachusetts State College	Pittsfield
Hanson, John Francis, B.S., Massachusetts State College	Amherst
Hopkins, Louise Alice, B.A., Wells College	Northampton
Howard, Harlan Arnold, B.S., Massachusetts State College	Amherst
Kline, Thomas Karl, A.B., Illinois College	Walshville, Illinois
Kling, William, B.S.S., College of the City of New York	New York, N. Y.
Kobren, Abraham, B.S., Wagner College	Bayone, N. J.
Kollen, Myron Henry, A.B., Hope College	Holland, Mich.
Kulash, Walter Michael, B.S., Massachusetts State College	Haydenville
Landis, Albert Broudy, B.S., Massachusetts State College	Amherst
Lewis, Gothie Harry, B.S., Pennsylvania State College	Hazelton, Pa.
Lincoln, Madeline Hazel, B.S., Massachusetts State College	Belchertown
Lincoln, Roger Nye, A.B., Tufts College	Ware
Lynch, Melvin Andrew, B.S.E., Fitchburg State Teachers College	Springfield
Martin, Edward William, B.S., Massachusetts State College	Adams
Meyer, Robert Sanford, A.B., Clark University	Springfield
Mills, Ernest Merle, B.S., Cornell University	Amherst
Mindell, Abraham, B.S., Connecticut State College	Hartford, Conn.
Mitchell, Sylvester Christopher, B.A., Ottawa University	Springfield
Moran, John Francis, B.S.E., Fitchburg State Teachers College	Pittsfield
Morrison, Charles Wilber, A.B., Whitman College	Bellingham, Wash.
O'Brien, Katherine Louise, B.S., Massachusetts State College	Amherst
O'Rourke, Ralph William B.S.E., Fitchburg State Teachers College	Springfield
Pelissier, Raymond Francis, B.S., Massachusetts State College	Hadley
Poland, Edwin Flagg, Jr., B.S., Connecticut State College	Stratford, Conn.
Pratt, Harry Davis, B.S., Massachusetts State College	North Adams
Reay, Edward William, A.B., Illinois College	Johnson City, Ill.
Rosnick, Hyman, B.S., East Stroudsberg Teachers College	Springfield
Ruffley, John, Jr., B.S., Massachusetts State College	New Bedford
Scrivnor, Glen Franklin, B.P.E., Purdue University	Michigan City, Indiana
Shiff, Philip Burrill, B.S., Massachusetts State College	South Duxbury
Simon, Philip Nelson, B.S., Colby College	Brookline
Smith, Olive, B.S.E., Bridgewater State Teachers College	Springfield
Southwick, Lawrence, B.S., Massachusetts State College	Leicester
Stevens, Robert Francis, B.S., Massachusetts State College	Medfield
Stiles, Stuart Penfield, B.A., Wesleyan University	Amherst
Tomlinson, William Edward, Jr., B.S., Tufts College	West Newton
Torno, William Herman, B.S.E., Fitchburg State Teachers College	Holyoke
Vitagliano, Guy Robert, B.S., University of New Hampshire	Concord, N. H.
West, Eleanor Alice, B.S., Massachusetts State College	Sheffield
Whittemore, Frederick Winsor, Jr., B.S., Massachusetts State College.	Canton
Zak, John Michael, B.S., Massachusetts State College.	Sunderland

Bachelor of Landscape Architecture (B.L.A.)

George, Murray Winter, B.S., Massachusetts State College	Wrentham
Renfro, Henry Moore, B.S., Alabama Polytechnic Institute	Opelika, Alabama
Roberts, Louis Everett, B.S., Massachusetts State College	Lexington

Bachelor of Science (B.S.)

Adams, Crawford William	Springfield
Alcorn, Robert Edward	West Springfield
Allaire, Royal Phillip	Northampton
Allen, Marshall Bigelow	North Grafton
Anderson, Philip Brigham	Framingham
Avery, Rexford Hanson	Shrewsbury
Avery, William Blodgett	Shelburne Falls
Baker, Warren Sears, Jr.,	Hanson
Ball, Elinor Prescott	Roxbury
Bargfrede, John Frederick	Pearl River, N. Y.
Barton, Elizabeth Sherwood	Amherst
Barton, Richard Wallace	Amherst
Beaumont, Davis Wortham	Amherst
Beaumont, Edgar Sidney	Amherst
Becher, Marion Rose	Longmeadow
Belgrade, Harry Louis	Northampton
Beloin, Mederic Howard	Holyoke
Benson, Kenneth Ellis	Winchester
Bergman, William Erving	Shelburne Falls
Bianco, Joseph Raymond	North Adams
Bieniek, Edwin Alexander	Holyoke
Binder, Irving	Roxbury
Bixby, Ruth Lydia	Sunderland
Blaisdell, Harry Linwood, Jr.,	Greenfield
Blake, Norman Perkins	Malden
Blomberg, Earl Alfred	Leominster
Bloom, Esther Lillian	Springfield
Bode, Fred William	Lawrence
Bokina, Carl John	Hatfield
Bozek, Stanley John Milton	Easthampton
Bray, Richard Irving	Gloucester
Bray, Warren Clarence	Granby
Brown, Elinor	Leicester
Brown, Herbert Earl	Ashland
Brox, Frank Arthur	Dracut
Bullock, William Augustine	Arlington
Burke, James William	Amherst
Bush, John George	Turners Falls
Buzzee, Robert Daniel	Easthampton
Carpenter, Cynthia Ellen	Sterling Junction
Carr, Frank Fairfield	West Medford
Caruso, Edward Francis	Springfield
Casazza, John Bernard	Merrimac
Casey, Arthur Daniel	Franklin
Cederberg, Florence Mildred	Jamaica Plain
Chase, Jessie Josephine	West Springfield
Chase, Philip Batcheller	Springfield
Clapp, Edward Theodore	Florence
Clark, Norman	Sharon
Collins, Charles Wilson	Medford
Collins, William James	Salem
Cone, Leon Winston	North Brookfield
Corkum, Gladys Martha	Methuen
Couper, Henry Vincent	Littleton
Coutu, Vernon Francis	Erving
Crowell, Stella Ida	Greenfield
Curtin Kathleen Teresa	Tyringham
Curtis, Clifford Alvin	Hopkinton
Cushman, Frank Melvin	Malden
Czelusniak, Edward William	Easthampton
Davidson, Albert Alan	Springfield
Dewey, Robert Clifford	Gardner
Dickens, Frederick Leland	Ashland
Dolliver, Marguerite Elizabeth	Belmont
Dunlop, John Thistle	Chicopee
Dunn, Joseph Francis	Brighton
Eaton, William	Waltham
Edson, Charles Grant	Springfield
Edson, Theodora Elizabeth	East Braintree
Eliopoulas, Nicholas Daniel	Haverhill
Elkind, Henry Byron, Jr.	North Scituate
Ellegaard, Lloyd Howard	Holyoke
Elliott, Charles Edward	Beverly
Epstein, Walter Nathan	Dorchester
Fagan, Virginia Mary	Holyoke
Fahey, Eleanor Dorney	Winthrop
Farnsworth, Albert Humphries	Worcester
Farrell, Kenneth Thomas	Brookline
Feinburg, Robert Sidney	Brighton
Ferguson, William Bragdon	Ludlow
Filipkowski, Frances Pola	Whately
Finkel, Jack	Springfield
Fitzpatrick, Richard James	Rochdale
Fleming, James Appenzellar	Holyoke
Flower, Stanley Allen	Southbridge
Forbush, Alfred Merton	Longmeadow
French, Cyrus Edwin	West Roxbury

Gage, Robert Wilcox	Needham
Gaskell, Elizabeth Frances	South Deerfield
Gibbs, Berthier Lyman	Saugus
Gilbert, Ann	Belmont
Gill, Joseph Stanley	Bondsville
Glass, Edward Hadley	Lexington
Gleason, Robert Patrick	Northampton
Goldberg, Shirley Bliss	Amherst
Goldman, Abraham Bernard	Dorchester
Golub, Samuel Joseph	Springfield
Graham, William Butterworth	North Andover
Graves, Julia Tice	Sunderland
Green, Walter Albert	Lynn
Gruner, Saul George	Pittsfield
Guenard, George Henry	Dracut
Hadro, Gertrude Josephine	Easthampton
Halpern, Herbert Milton	Holyoke
Handverger, Edward	West Medway
Harrison, William Hughes, Jr.	Lawrence
Haskins, Philip Hanley	Williamstown
Hauck, Russell John	Norwood
Heller, Saul	Roxbury
Hemond, Conrad Joseph, Jr.	Holyoke
Hemond, Harold Crean	Holyoke
Hennessy, Thomas, Jr.	Newton Highlands
Higgins, Edward William	Arlington
Hill, Kathryn	Springfield
Hoar, John Sherman	Amherst
Houghton, Leroy Kingsbury, Jr.	West Roxbury
Howard, Almeda Barr	Elizabeth, N. J.
Hurwitch, Benjamin Gordon	Dorchester
Ingram, Ralph	Falmouth
Irving, Richard Randlett	Methuen
Jackson, Mitchell Irving	Fairhaven
Jacobson, Seymour Theodore	Springfield
Jefferson, Ruth Reta	West Springfield
Jenkins, Doris Wynne	Shrewsbury
Johnson, Herbert Harry	Roslindale
Judd, Kirtley Leverett	Springfield
Julian, Carol	Amherst
Julian, Eleanor Burton	Amherst
Kaplinsky, Martha Dorothy	Holyoke
Katzeff, Julian Herman	Brookline
Kelley, Thomas Francis	Waltham
Kenyon, Marieta Gibson	East Douglas
King, Elladora Katherine Huthsteiner	Pittsfield
King, Richard Coleman	Newtonville
Kingsbury, Helen	Sterling
Kinsman, Jessie	Roxbury
Klaucke, Rowland	Worcester
Klayman, Maxwell Irving	Roxbury
Kodis, Ruth Elinor	Leicester
Kohn, Bernard Lester	Roxbury
Kuklewicz, Frank Peter	Turners Falls
Lamb, David Allison	South Hadley Center
Lavrakas, John	Watertown
Lee, James Donovan	Chester
Levinson, Lawrence	Arlington
Liljegren, Solveig Utne	Wollaston
Linden, Norman Elliott	Everett
Little, Melvin Theodore	East Weymouth
Lombard, Elmer Ralph	Pittsfield
Lonergan, William Francis, Jr.	Springfield
Lyons, Robert Stephens	Springfield
Mabie, Richard Lockwood	Sharon
MacCurdy, Robert Douglas	Watertown
Macomber, Lois Rogers	Fairhaven
Mann, Lillian Russell	Westfield
Mayko, Walter Charles	Holyoke
McGowan, Donald Sanford	Holyoke
Mildram, David Elliot	Greenwood
Milkey, Elaine Helen	Montague City
Millard, Carol Frances	Segreganset
Miller, Barbara Mitchell	Springfield
Mish, Edward Theodore	South Hadley
Mitchell, Walter Kimball, Jr.	Newton Highlands
Moore, Edwin Lewis	Amherst
Morley, Frances Lillian	Amherst
Morris, Helen Carew	Monson
Morrison, Robert Karl	Pittsfield
Moult, Roy Hepworth	Lynn
NeJame, Mitchell Francis	North Adams
Nelson, Phyllis Louise	Arlington
Newman, Edward George	North Brookfield
Niden, George	Newton Centre
Nolan, Kenneth Gordon	Danvers
Noonan, William George	Haverhill
O'Connell, Mary Patricia	Wakefield
O'Donnell, William Gregory, Jr.	Milford
Olivier, James Barnes	Holyoke

Osley, Donald	Hatfield
Page, Alfred Sylvester	South Amherst
Parker, Evelyn Maude	Orange
Perkins, Robert Cowan	Worcester
Phillips, Barbara Sanborn	Greenfield
Pollard, Albert William	Northampton
Pond, Virginia Mabel	Greenfield
Potter, Wendell Judson	Melrose
Putnam, Paul Sears	Greenfield
Pyensen, Maxwell	Otis
Quast, Wentworth	Natick
Randall, Sylvia Arline	Granby
Randlett, Horace Hillman	North Wilbraham
Rice, Theodore Albert	Wellesley
Riel, Frederick Charles	Turners Falls
Riley, William Charles	Holyoke
Roberge, William Edward	Westfield
Rosenbloom, Charles	Holyoke
Rounds, Dean Leonard	Reading
Rozwenc, George Stephen	Northampton
Rustigian, Robert	Medford
Rutter, Louise Baldwin	Waltham
Schopfer, Jane Elizabeth	Worcester
Seal, Ethel Frances	Worcester
Shaw, Marion	Belchertown
Sherman, Chester	Amherst
Sievers, Frederick John, Jr.	Amherst
Silverman, Donald Lawrence	Roxbury
Silverman, Stephen Israel	Milton
Slesinski, Frank Alphonse	Northampton
Slocomb, Jack Tibbets	Brockton
Smardon, Philip	Portland, Maine
Smith, Rodger Chapman	Amherst
Smith, Russell Eaton	Lawrence
Snow, Phyllis Maude	Brockton
Snyder, Harry Miles	Medford
Spaight, Kathryne Ida	Springfield
Sprague, Edna Angie	Hamilton
Stewart, Christine Alan	Boylston
Streeter, Mary Elizabeth	Holyoke
Strode, Barbara Jeanette	Marblehead
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Taylor, Winnifred Hope	Pittsfield
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Thompson, Elthea	Norwood
Tindale, John William	Brockton
Tonkin, Maurice	Fitchburg
Towle, Richard Washburn	Cohasset
Towne, Louisa Elsie	Norfolk
Townsley, Floyd Wayne	Ashfield
Valkey, Delia Roberta	South Hanson
Velcker, William Fuller	Holyoke
Wheeler, James Francis	Natick
White, Howard Eric	North Amherst
Whitney, Walter Augustus, Jr.	Ashfield
Wildner, Carl Richard	Amherst
Willard, DeVoe Holmes	Baltimore, Md.
Wilson, Margaret Dorothy	Holyoke
Wood, Douglas James	Florence
Wood, Lois Virginia	West Upton
Wood, Ruth Elizabeth	Springfield
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Bachelor of Vocational Agriculture (B.V.A.)

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REGISTRATION 1938 - 1939

Graduate Students

Superior figures indicate: [1] Enrolled during academic year 1937-38
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Lincoln, Madeline H.,[1] Education . . . . . Amherst
B.S., M.S., Massachusetts State College

Lincoln, Roger N.,[1] Education . . . . . Ware
A.B., Tufts College
M.S., Massachusetts State College

Lipman, Leo D.,[1 3] Dairy Industry . . . . . Springfield
B.S., Massachusetts State College

Lombard, William R.,[2] Education . . . . . West Springfield
A.B., Colby College

Lord, Bertha W.,[3] Landscape Architecture . . . . . Pittsford, Vermont
A.B., Cornell University

Lubitz, Robert S.,[3] Bacteriology . . . . . New Haven, Conn.
A.B., University of Kentucky

Lynch, Harold E.,[3] Education . . . . . Pittsfield
A.B., Clark University

Lynch, Melvin A.,[1] Education . . . . . Springfield
B.S.E., Fitchburg State Teachers College
M.S., Massachusetts State College

Lyons, Mary E., [1 2 3] Food Technology . . . . . Holyoke
B.S.E., Framingham State Teachers College
M.A., Columbia University Teachers College

MacFarlane, Gertrude E.,[3] Education . . . . . Northampton
B.S., Boston University

Maclinn, Walter A.,[1] Food Technology . . . . . Amherst
B.S., M.S., Ph.D., Massachusetts State College

Macomber, Lois R.,[3] Psychology . . . . . Fairhaven
B.S., Massachusetts State College

Manning, Mae G., [2 3] Education . . . . . Westfield
B.S.E., Westfield State Teachers College

Marciniak, Emil,[3] Chemistry . . . . . Easthampton
B.S., Massachusetts State College
M.S., University of Pennsylvania

Marston, George A.,[1] Bacteriology . . . . . Amherst
B.S., Worcester Polytechnic Institute
M.S., University of Iowa

Martin, Edward,[1] Education . . . . . Adams
B.S., M.S., Massachusetts State College

Martin, James R.,[3] Floriculture . . . . . Achituate
B.S., Boston University

McChesney, Herbert L.,[3] Chemistry . . . . . Springfield
B.S., Massachusetts State College

McCornack, Andrew A.,[3] Horticultural Manufactures . . . . Eugene, Oregon
B.S., Oregon State College

McGuckian, Ambrose T.,[1] Education . . . . . Holyoke
B.S., Massachusetts State College

McMahon, Frank J.,[3] Education . . . . . Ludlow
B.S.E., Bridgewater State Teachers College

McQueston, Dorothy E.,[2] . . . . . Hadley
A.B., Brown University
Meyer, Robert S.,[1] Chemistry . . . . . Springfield
A.B., Clark University
M.S., Massachusetts State College
Miller, Eileen A.,[3] Home Economics . . . . . Providence, R. I.
B.S., Rhode Island State College
Mills, Ernest M.,[1] Horticultural Manufactures . . . . Amherst
B.S., Cornell University
M.S., Massachusetts State College
Mindell, Abraham,[1] Horticultural Manufactures . . . Hartford, Conn.
B.S., Connecticut State College
M.S., Massachusetts State College
Minzner, Raymond A.,[1] Education . . . . . Lawrence
B.S., Massachusetts State College
Mitchell, Sylvester C.[1 3] . . . . . Springfield
B.A., University of Ottawa
M.S., Massachusetts State College
Moore, Edwin L.,[3] Chemistry . . . . . West Pelham
B.S., Massachusetts State College
Moore, George C.,[3] Bacteriology . . . . . Greenfield
A.B., Boston College
Moran, Charles H.,[3] Agronomy . . . . . East Boston
B.S., Massachusetts State College
Moran, John F.,[1] Education . . . . . Pittsfield
B.S.E., Fitchburg State Teachers College
M.S., Massachusetts State College
Morrison, Charles W., Horticultural Manufactures . . . . Bellingham, Wash.
A.B., Whitman College
M.S., Massachusetts State College
Moss, William H.,[2] Education . . . . . Mattapoisett
B.S., Massachusetts State College
Mueller, William S.,[1 3] Food Technology . . . . . Amherst
B.S., University of Illinois
M.S., University of New Jersey
Munson, Janice[2] Education . . . . . Amherst
B.S., Massachusetts State College
Murtagh, William P.,[3] Education . . . . . Great Barrington
A.B., Holy Cross College
Nettleton, George E.,[1] Entomology . . . . . West Haven, Conn.
B.S., Connecticut State College
M.S., Massachusetts State College
Newman, Kenneth R.,[3] . . . . . Hoosac Tunnel
B.S., M.S., Massachusetts State College
Nickens, Walter H.,[1] Land. Arch. . . . . Tuskegee, Alabama
B.S., Tuskegee Institute
Novick, Julius,[1] Horticultural Manufactures . . . . Amherst
B.S., M.S., Massachusetts State College
O'Brien, Allan J.,[1] Education . . . . . Northampton
B.S., Massachusetts State College
O'Brien, George E., [1 3] Chemistry . . . . . Northampton
B.S., Massachusetts State College
O'Brien, Katherine,[1] Home Economics . . . . . Amherst
B.S., M.S., Massachusetts State College
O'Connor, Helen M.,[1 3] Education . . . . . Springfield
B.S.E., Fitchburg State Teacher College
O'Connor, Michael G.,[3] Food Technology . . . . . Springfield
B.S., St. Lawrence University
M.S., Massachusetts State College
Ollry, Francis C.,[1] Psychology . . . . . Newark, N. J.
A.B., Newark University
O'Rourke, Ralph W.,[1] Education . . . . . Springfield
B.S.E., Fitchburg State Teachers College
M.S., Massachusetts State College
Parshley, Elsa M.,[2] . . . . . Northampton
A.B., Smith College
M.A., Radcliffe College
Parsons, Ethel E.,[2] Education . . . . . Northampton
A.B., Smith College
Pease, Howard E.,[2] Education . . . . . Ashfield
B.S., Massachusetts State College
Pelissier, Raymond F.,[1] Agricultural Economics . . . . Hadley
B.S., M.S., Massachusetts State College
Perry, Priscilla R.,[3] Home Economics . . . . . Springfield, Vt.
B.S., University of Vermont
Peterman, Jack Nat,[3] Psychology . . . . . Newark, N. J.
B.A., University of Newark
Pierce, Dorothy,[2] Education . . . . . Holden
B.S.E., Worcester State Teachers College
Planting, Alfred H.,[1 3] Agricultural Econ. . . . . Amherst
B.S., Massachusetts State College
Poland, Edwin F., Jr.,[1] Hort. Man. . . . . Stratford, Conn.
B.S., Connecticut State College
M.S., Massachusetts State College
Ponte, Edward P.,[1] Education . . . . . Springfield
B.S.E., Fitchburg State Teachers College
Porter, Wayland R.,[2] Education . . . . . Amherst
B.S., Carnegie Institute of Technology
Poulos, Bessie A.,[3] Education . . . . . Sunderland
B.S.E., Fitchburg State Teachers College

Pratt, Harry D.,[1] Entomology . . . . . North Adams
B.S., M.S., Massachusetts State College
Prendergast, Lillian M.,[1] . . . . . Worcester
A.B., Boston University
Provost, Rita A.,[3] Education . . . . . North Agawam
B.S., Massachusetts State College
Pyenson, Maxwell,[3] Poultry Science . . . . . Otis
B.S., Massachusetts State College
Quinn, Wilma A.,[2] Education . . . . . Holyoke
B.S.E., Bridgewater State Teachers College
Reay, Edward W.,[1] Education . . . . . Johnson City, Ill.
A.B., Illinois College
M.S., Massachusetts State College
Renfro, Henry M.,[1] Landscape Architecture . . . . . Opelika, Alabama
B.S., Alabama Polytechnic Institute
B.L.A., Massachusetts State College
Richard, Julian,[1 3] Agronomy . . . . . Quebec, Canada
B.S.A., University of Montreal
Richard, K. Helena,[1 3] Education . . . . . Springfield
B.S., Massachusetts School of Art
Richason, George R., Jr.,[1 3] Chemistry . . . . . Turners Falls
B.S., Massachusetts State College
Roberts, Louis E.,[1] Landscape Architecture . . . . . Lexington
B.S., B.L.A., Massachusetts State College
Roirdan, John J.,[3] Education . . . . . Roxbury
A.B., Boston College
Rooney, Grattan H.,[1 2] Education . . . . . Ludlow
B.A., St. Anselm's College
Rosnick, Hyman,[1] Education . . . . . Springfield
B.S., East Stroudsburg Teachers College
M.S., Massachusetts State College
Ruffley, John, Jr.,[1] Horticultural Manufactures . . . . . New Bedford
B.S., M.S., Massachusetts State College
Saulnier, Florence,[1] Education . . . . . Ludlow
B.S., Massachusetts State College
Savoie, Alphonse,[1] Dairy Industry . . . . . Quebec, Canada
B.S., University of Montreal
Sawyer, Milton J., Jr.,[3] Education . . . . . Feeding Hills
B.S., Boston University
Scrivnor, Glen F.,[1] Education . . . . . Michigan City, Indiana
B.P.E., Purdue University
M.S., Massachusetts State College
Seass, Stewart[1] . . . . . North Amherst
B.A., Williams College
M.A., Amherst College
Shaw, Miriam Morse,[1] Entomology . . . . . Amherst
B.S., St. Lawrence University
M.S., Ph.D., Massachusetts State College
Shea, Kevin C.,[3] . . . . . Chicopee
B.A., University of Ottawa
M.S., Massachusetts State College
Shiff, Philip B.,[1] Agricultural Economics . . . . . South Duxbury
B.S., M.S., Massachusetts State College
Sievers, Frederick J.,[3] Economics . . . . . Amherst
B.S., Massachusetts State College
Simon, Philip N.,[1 3] . . . . . Brookline
B.S., Colby College
M.S., Massachusetts State College
Simons, Howard R.,[3] Education . . . . . Springfield
B.S., Springfield College
Slesinski, Frank A.,[3] Chemistry . . . . . Northampton
B.S., Massachusetts State College
Smith, Alice L.,[3] Education . . . . . Northampton
B.S., Boston University
Smith, Chester W.,[1] Agricultural Economics . . . . . Fairfield, Maine
B.S., University of Maine
M.S., Massachusetts State College
Smith, Donald H.,[3] . . . . . Waltham
B.S., Massachusetts State College
Smith, Olive[1] Education . . . . . Springfield
B.S.E., Bridgewater State Teachers College
M.S., Massachusetts State College
Southwick, Lawrence,[1 3] Pomology . . . . . Amherst
B.S., M.S., Massachusetts State College
Spelman, Albert F.,[3] Chemistry . . . . . Amherst
B.S., Massachusetts State College
Spruijt, Frederik J.,[1 3] Entomology . . . . . Deerfield
Agricultural College of Amsterdam
M.S., University of California
Stevens, Nelson P.,[1] Chemistry . . . . . Haverhill
B.S., M.S., Massachusetts State College
Stevens, Robert F.,[1] Floriculture . . . . . Medfield
B.S., M.S., Massachusetts State College
Stiles, Stuart P.,[1] Chemistry . . . . . Amherst
B.A., Wesleyan University
M.S., Massachusetts State College
Story, Enoch F., Jr.,[1 3] Chemistry . . . . . East Providence, R. I.
B.S., M.S., Rhode Island State College
Stout, Ralph A.,[1] Education . . . . . Longmeadow
B.P.E., Springfield College

Stuart, Richard K.,[1 3] Education A.B., Washington & Lee University	Millers Falls
Studer, Albert R.,[1] Education B.S.E., Fitchburg State Teachers College	Greenfield
Sullivan, John L.,[1] Chemistry B.S., M.S., Holy Cross College	Worcester
Sweeney, Daniel J.,[3] Economics B. Com., University of Ottawa	Chicopee
Tatoian, Harry E.,[1 3] Education B.A., Colgate University	Thompsonville, Conn.
Taylor, Marie C.,[2] B.S., Massachusetts State College	Lee
Theriault, Frederic R.,[3] Chemistry B.S., Massachusetts State College	East Weymouth
Thomas, Winthrop S.,[1] Agricultural Economics B.S., Massachusetts State College	Amherst
Thorndike, Robert W.,[1] Land. Arch. B.S., Massachusetts State College	Lawrence
Tomlinson, William E.,[1] Entomology B.S., Tufts College M.S., Massachusetts State College	West Newton
Torno, William H.,[1] Psychology B.S.E., Fitchburg State Teachers College M.S., Massachusetts State College	Holyoke
Tramposch, Emil J.,[1 3] Land. Arch. B.S., Massachusetts State College	Amherst
Trevett, Moody F.,[3] B.S., Massachusetts State College	Franklin
Trowt, Eleanor,[1] B.S., Simmons College	Amherst
Tucker, Donald K.,[3] Psyhcology B.S., Massachusetts State College	Foxboro
Tufts, John W.,[1] Education B.S., Massachusetts State College	Cambridge
Turner, Max E.,[1] Pomology B.S., University of Maine	Augusta, Maine
Utley, Walter S.,[1] Education B.S., Massachusetts State College	Chesterfield
Vaughn, Donald M.,[1] Education B.P.E., Springfield College	Springfield
Vincent, Robert W.,[1 3] Education B.S., Springfield College	Westfield
Vitagliano, Guy R.,[1] Bacteriology B.S., University of New Hampshire M.S., Massachusetts State College	Concord, N. H.
Vose, Charles E.,[1] Education B.S., Middlebury College	Ashfield
Weeks, Walter D.,[3] Pomology B.S., University of New Hampshire	Laconia, N. H.
West, Eleanor A., [1 2] Olericulture B.S., M.S., Massachusetts State College	Sheffield
Whalen, Edward J.,[1] Education B.S.E., Fitchburg State Teachers College	Springfield
Whalen, Francis J.,[3] Education B.S.E., Fitchburg State Teachers College	Springfield
Whittemore, Frederick W., Jr.,[1 3] Entomology B.S., M.S., Massachusetts State College	Canton
Widland, Myron A.,[1 3] Dairy Industry B.S., Massachusetts State College	Springfield
Wilkinson, Richard A.,[3] Education B.S.E., Fitchburg State Teachers College	Agawam
Williams, Sidney,[1 3] Chemistry B.S., Massachusetts State College	Amherst
Wishart, Frederick J., [1 3] Bacteriology B.S., Massachusetts State College	Turners Falls
Wood, Harold S.,[2] Education B.S., Massachusetts State College	Central Village
Wood, John R.,[1] Botany A.B., Dartmouth College	North Easton
Woodward, Charles G.,[3] Entomology B.S., Davidson College	Boston
egian, Hrant,[1] B.S., Iowa State College	Amherst
onika, Thaddeus M.,[1] Dairy Industry B.S., Massachusetts College of Pharmacy	Brighton
ak, John[1] Agronomy B.S., M.S., Massachusetts State College	Sunderland

Summary Graduate Students

	Men	Women	Total
nrolled during academic year 1937-38	160	31	191
nrolled in Summer School 1938	21	20	41
nrolled during first semester 1938-39	122	28	150
Total excluding duplications	253	67	320

Undergraduate Students

Class of 1939

Andersen, Henry Gardner	Newton Centre	North College
Anderson, Rita	Easthampton	The Homestead
Auberbach, Milton Edward	Springfield	Mt. Pleasant Inn
Balcom, John Murray	Quincy	Sigma Alpha Epsilon
Barké, Harvey Ellis	Plymouth	Alpha Sigma Phi
Barrett, William Francis	Adams	13 Nutting Avenue
Bartlett, Lawrence Matthews	Medford	The Apiary
Beck, Sidney Harold	Malden	Alpha Epsilon Pi
Beckman, Wallace George	Springfield	Colonial Inn
Bemben, John	Hadley	30 North Hadley Road
Benjamin, George Cobb	Lee	Phi Sigma Kappa
Bennas, James George	Amherst	18 Dickinson Street
Bettoney, Stanley	Stoughton	Q. T. V.
Bischoff, George Herman	Holyoke	47 Fairview Way
Bixby, Lawrence Hubbard	Sunderland	Sunderland
Blassberg, Irving	Turners Falls	Tau Epsilon Phi
Booth, Mabelle	Foxboro	24 McClure Street
Boron, Bertha Barbara	South Deerfield	South Deerfield
Bradley, Geraldine Irene	Amherst	826 Main Street
Branch, Charles Leland	Amherst	93 Dana Street
Brann, James Lewis	Westwood	The Apiary
Briggs, Beryl Frances	Ashburnham	Lambda Delta Mu
Brisset, Pauline Amelia	Holyoke	8395 Hampshire Street, Holyoke
Broadfoot, Arthur David	Amherst	24 Stockbridge Road
Brody, George	Roxbury	Care of Winkler, East Pleasant Street
Brown, Donald Emerson	Beverly	14 Cosby Avenue
Buckley, Rita Marie	Beverly	Sigma Beta Chi
Burgun, Philip Eugene	Canton	Sigma Phi Epsilon
Cadigan, Donald Winslow	Greenfield	308 North Pleasant Street
Cain, Robert Emery	Conway	Kappa Sigma
Calo, Donald	Flushing, N. Y.	Phi Sigma Kappa
Carp, Abraham	Boston	Alpha Epsilon Pi
Cassidy, Wellington Elmer	North Andover	84 McClellan Street
Chapin, Ronald Hale	Greenfield	Theta Chi
Christie, Charles Frederick	Malden	12 Colony Court
Ciereszko, Leon Stanley	Holyoke	47 Farview Way
Clapp, Elizabeth May	Springfield	Sigma Beta Chi
Cole, Robert Salisbury	Westfield	39 Old Town Road
Cole, Roger Martin	Marblehead	Phi Sigma Kappa
Colgate, Doris	Billerica	Adams House
Conant, Chester Cook	Greenfield	215 Sunset Avenue
Cooper, Grace Battell	Stockbridge	Adams House
Copeland, Lloyd Bardwell	Colrain	40 Hendrick Place
Cousins, Ivan Roper	Greenfield	27 Fearing Street
Cowles, Donald Harry	Brighton	Lambda Chi Alpha
Cox, William Hayward	Bridgewater	Theta Chi
Crosby, Justina Cotta	Newton Centre	Sigma Beta Chi
Crowley, Shelagh Agnes	West Springfield	Lambda Delta Mu
Czajkowski, Mildred Ann	Amherst	R. D. Box 107
Damon, Marjorie Eva	Haydenville	Sigma Beta Chi
Davenport, Beatrice Louise	Mendon	128 East Pleasant Street
Decatur, Dorothy Mary	Wayland	116 East Pleasant Street
Decker, Roger Herman	Westfield	Stockbridge Hall
Degraff, Raymond Alphonse	Holyoke	Q. T. V.
Dimock, Edgar Wellwood	Oxford	Q. T. V.
Dixon, Ethel Winnifred	Leverett	Leverett
Doherty, Joseph Anthony	Revere	Phi Sigma Kappa
Dorman, Kenneth Ronald	Gilbertville	Sigma Phi Epsilon
Dyer, Doris Hopkins	Saugus	Sigma Beta Chi
Eaton, Elizabeth Dockham	Holyoke	Lambda Delta Mu
Eldridge, Eva Margaret	South Yarmouth	Sigma Beta Chi
Eldridge, Everett Warner, Jr.	Palmer	Theta Chi
Elliott, Richard Duncan	Winchester	Sigma Alpha Epsilon
Esson, Marjorie Harrold	Dorchester	Adams House
Estabrook, Frederick Dickinson	Northampton	Kappa Sigma
Fanning, Francis Thomas	Milton	Phi Sigma Kappa
Fanning, Paul Richard	Milton	Phi Sigma Kappa
Farren, Francis John	Adams	449 North Pleasant Street
Fay, Leo Daniel	Boston	Q. T. V.
Featherman, Maurice	Natick	Alpha Epsilon Pi
Fisher, Myron Wolf	Winthrop	Tau Epsilon Phi
Fitts, Eleanor Frances	Northboro	The Homestead
FitzPatrick, William Henry	Amesbury	33 Phillips Street
Flynn, Elizabeth Peer	Belchertown	Belchertown
Foerster, Wilma Ruth	Holyoke	45 Lawler Street, Holyoke
Folkner, Joseph Samuel	Denver, Colo.	45 Phillips Street
Fortin, Constance Claire	Holyoke	Phi Zeta
Foster, Ralph Longwell	Colrain	Colrain
Fowell, Donald Maxwell	Northampton	27 Fearing Street
Galvin, John Joseph	Northampton	5 Edwards Square, Northampton
Giddings, Lane	Great Barrington	401 North Pleasant Street
Giles, Richard Alden	Cummington	Sigma Alpha Epsilon
Glass, Robert Butterfield	Arlington	Theta Chi

ick, John Ferol	Amherst	Kappa Sigma
ow, Lewis Lyman	East Pepperell	Colonial Inn
ynn, Marion Louise	Amherst	70 Taylor Street
oldberg, David	Northampton	276 State Street, Northampton
oldberg, Florence Sylvia	Allston	20 Allen Street
oldman, Sylvia	Worcester	Adams House
ode, Frederick Dickinson, Jr.	Auburndale	Theta Chi
ordon, Harold Thomas	Holyoke	37 Phillips Street
ove, Chester Allen	Walpole	Phi Sigma Kappa
ant, Emerson Wallace	Middleboro	Phi Sigma Kappa
aves, James Oliver Stanley	Greenfield	Alpha Gamma Rho
iffin, Charles William	Holyoke	Lambda Chi Alpha
nness, Marion Elizabeth	Amherst	51 Butterefild Terrace
all, Bettina	Foxboro	24 McClure Street
anigan, William James, Jr.	Springfield	30 Chestnut Street
arris, Marjorie Eulala	Leominster	Lambda Delta Mu
aylon, George Joseph	Pittsfield	Lambda Chi Alpha
aynes, Paul Harlow	Southbridge	14 Cosby Avenue
ealy, Frank Clifford	Buckland, Conn.	13 Nutting Avenue
erman, Jeanette	Roxbury	Adams House
ornbaker, David Winford	Worcester	Theta Chi
owes, Herbert Shurtleff	Middleboro	Kappa Sigma
blonski, Stephen Malcolm	Greenfield	382 North Pleasant Street
sper, Elizabeth Shirley	Springfield	24 McClure Street
vorski, Joseph John	Thompsonville, Conn.	414 North Pleasant Street
hnson, David Hammond	Suffield, Conn.	Sigma Phi Epsilon
hnson, Laurence Edward	Holyoke	Kappa Sigma
lian, Charles Nelson	Amherst	40 Farview Way
plan, Arthur Milton	Chelsea	414 North Pleasant Street
plinsky, Anne Fern	Holyoke	Draper Hall
tz, Coleman	Roxbury	Tau Epsilon Phi
efe, Mary Margaret	Westfield	Lambda Delta Mu
rivan, Katherine Eleanor	Newton Upper Falls	35 McClure Street
rtzman, Louis	Somerville	Alpha Epsilon Pi
yes, Edmund Mac	Amherst	R. F. D. 2
ng, James Sumner	Maynard	Lambda Chi Alpha
ngsbury, Frank William[1]	Sterling	Alpha Gamma Rho
ehler, Dorothy Lillian	Greenfield	61 Fearing Street
wson, Donald Seabury	Waltham	Phi Sigma Kappa
clair, Leopold Joseph	Amherst	29 South Pleasant Street
e, Richard Everett	New Bedford	Lambda Chi Alpha
hr, Charles Edward	Springfield	Alpha Sigma Phi
vin, Leonard Maurice	Northampton	35 Maple Street, Northampton
chtenstein, Parker Earl	Melrose	Phi Sigma Kappa
ppincott, Clifford Ellwood	Lee	Phi Sigma Kappa
tchfield, Marjorie	Hyde Park	Sigma Beta Chi
ice, Clifford Norton	Worcester	Theta Chi
ice, Phillips Edward	Framingham	Alpha Sigma Phi
man, Thomas Graves	Easthampton	308 North Pleasant Street
nch, Julia Mary	Westfield	Lambda Delta Mu
cDonald, Margaret Phyllis	Huntington	The Homestead
dden, Margaret May	Methuen	The Homestead
lkin, Isaac Edward	Chelsea	388 North Pleasant Street
rsh, Robert Kendall	Rutland	Alpha Gamma Rho
rtin, Justine Gordon	Jamaica Plain	93 Fearing Street
schin, Marian Isabel	Westfield	Adams House
yo, Donald Stewart	Framingham	Alpha Sigma Phi
ehan, James	Lawrence	Thatcher Hall
ehan, Mary Theresa	Holyoke	Draper Hall
ndall, Seaton Crawford	Middleboro	Kappa Sigma
rrill, Frances Somerville	Raynham Center	24 McClure Street
urer, Ethel	Springfield	101 Butterfield Terrace
ckelson, Clara Evelyn	Millbury	Adams House
ller, Alexander Andrew	East Hartford, Conn.	90 North Prospect Street
lne, Douglas Duncan	Larchmont, N. Y.	274 North Pleasant Street
ore, Harold Emery, Jr.	Sharon	Phi Sigma Kappa
rey, Clifton Wentworth	Belmont	Phi Sigma Kappa
rin, Edward Lawrence	Amherst	9 McClure Street
rse, Laura Edison	Belmont	93 Fearing Street
ller, Robert Harold	Darien, Conn.	Lambda Chi Alpha
erson, Alvan John	Brookline	Alpha Epsilon Pi
stle, Shirley Elizabeth	Amherst	277 Triangle Street
chols, Dorothy Elizabeth	Westfield	24 McClure Street
rwood, Olive Freeman	Worcester	Sigma Beta Chi
Donnell, Grace Patricia	Westfield	Sunset Court
Hearn, Helen Esther	Cambridge	128 East Pleasant Street
son, Elizabeth Janet	Manchester	Adams House
ckard, Robert Wesley	Worcester	Theta Chi
rker, John Alfred	Ashby	Theta Chi
rks, Nancy	Sherborn	Sigma Beta Chi
rmenter, Ray	Franklin	Alpha Sigma Phi
ul, Joseph	Northampton	359 Bridge Street, Northampton
reira, George Anthony	Holyoke	Q. T. V.
lps, Ellsworth, Jr.	Washington, D. C.	387 North Pleasant Street
ckard, Laurence Kent	Salisbury	26 Mt. Pleasant
dolak, Stanley	Easthampton	Sigma Alpha Epsilon
wers, Richard Lyman	West Springfield	394 North Pleasant Street
tt, John Jacob	Cohasset	East Experiment Station

Purnell, Frederick	Amherst	10 Tyler Place
Pushee, Virginia	North Amherst	1147 North Pleasant Street
Rathbone, Frances Bullard	Haverhill	Sigma Beta Chi
Reade, Irvin Douglas	Whitman	Q. T. V.
Richardson, Eunice Moore	Baldwinsville	82 North Prospect Street
Riel, Francis James	Turners Falls	East Experiment Station
Roberts, Everett[1]	Quincy	Q. T. V.
Rodda, Charles Jr.	Springfield	Lambda Chi Alpha
Rose, Harold Davies	Medford	The Apiary
Rosen, Sidney	Dorchester	Tau Epsilon Phi
Rosenthal, Morris	West Springfield	296 North Pleasant Street
Salmela, Henry Arthur	Maynard	Q. T. V.
Sannella, Joan Rosina	Springfield	24 McClure Street
Savage, James Harvey	Lynnfield Center	215 Sunset Avenue
Schmidt, Vincent Raymond	New Bedford	Thatcher Hall
Schwartz, Ernest	Springfield	Tau Epsilon Phi
Sedoff, Bernice	Winthrop	Adams House
Sheehan, Eleanor Louise	Holyoke	870 North Pleasant Street
Shipman, Lee Charles	Worcester	Alpha Sigma Phi
Sinclair, Belva Marie	Northampton	Sigma Beta Chi
Slater, Charles Edward	Tyringham	Sigma Alpha Epsilon
Smart, Raymond Elmer, Jr.	South Amherst	West Street
Smith, Francis Eliot	Arlington	14 Cosby Avenue
Snow, Bethany Parker	Dorchester	Adams House
Southwick, Franklin Wallburg	White Plains, N. Y.	Lambda Chi Alpha
Spofford, Inez Evelyn	Haverhill	Alpha Lambda Mu
Stawiecki, Edmund	Webster	Q. T. V.
Steff, Howard Newton	North Dartmouth	Theta Chi
Steinberg, Jack	Chelsea	Alpha Epsilon Phi
Stetson, Courtney Junior	Athol	Theta Chi
Stoddard, Edward Forrest	Framingham	Alpha Sigma Phi
Stomberg, Marion King	Florence	472 North Pleasant Street
Swanson, Robert Warren	Rockport	Durfee Range
Tannenbaum, Leo Wolf	Roxbury	12 Colony Court
Taylor, Bernice Eleanor	Belchertown	19 Hitchcock Avenue
Taylor, Priscilla Winslow	Jamaica Plain	116 East Pleasant Street
Townsend, John Vincent	South Hadley	Alpha Sigma Phi
Truran, Margaret Elizabeth	Stockbridge	128 East Pleasant Street
Ullman, Robert Edgerton	Northampton	Theta Chi
Vaill, Phila Kellogg	Monson	20 Allen Street
Villaume, Osgood Louis[1]	Malden	The President's House
Vittum, Morrill Thayer	Haverhill	Sigma Alpha Epsilon
Wakefield, Walter Thompson	Worcester	Theta Chi
Ward, Eleanor	Springfield	The Homestead
Warner, Elizabeth Rose	Sunderland	Adams House
Warren, Francis Albert	Ashfield	Lambda Chi Alpha
Welch, Ervin Leonard	Melrose	Mt. Pleasant Inn
West, Mary Lees	New Bedford	35 McClure Street
Wiggin, Stanley Hopkins	Newton Centre	Alpha Gamma Rho
Wilcox, Edmund Gillette	Stockbridge	Theta Chi
Wilcox, Marjorie Frances	Pittsfield	The Homestead
Wilke, Gerhard Max	Holyoke	600 Canal Street, Holyoke
Willard, Edward Buck	Wollaston	Sigma Alpha Epsilon
Wilson, Elliot Tilden	Weymouth	Sigma Alpha Epsilon
Wilson, Merton Frederick	South Hadley Falls	West Experiment Station
Winn, Jay Henry	Brookline	Alpha Epsilon Pi
Wirtanen, Leonard Charles	Quincy	Q. T. V.
Witek, John Joseph	Greenfield	5 Strong Street
Wojtasiewicz, Henry	Chicopee	Q. T. V.
Yourga, Frank John	Greenfield	26 Mt. Pleasant
Zajchowski, Walter Andrew	Chicopee	Q. T. V.
Zaskey, Lucy Anne	Amherst	Mt. Warner Road
Zelazo, Stanley Frank	Adams	382 North Pleasant Street

Class of 1940

Abramovitz, Sydney	Beverly	296 North Pleasant Street
Abrams, Betty Vignes	Springfield	Phi Zeta
Adelson, Arthur	Chelsea	414 North Pleasant Street
Alfieri, Mario Paul	Amherst	60 Railroad Street
Archibald, Jean Marie	North Amherst	164 Montague Road, North Amherst
Bailey, Myron Colburn	Northampton	The Beeches, Northampton
Bak, Mildred Marion	Hadley	Middle Street, Hadley
Banuzkewic, Anna Matilda	Pittsfield	76 North East Street
Barnard, Vincent Jason	North Adams	Lambda Chi Alpha
Barton, Beryl Hazel	North Adams	Alpha Lambda Mu
Bates, Mary Elizabeth	Pittsfield	Sigma Beta Chi
Beagarie, Bernard James	Greenfield	97 Maple Street, Greenfield
Beames, Geoffrey Hamilton	Falmouth	395 North Pleasant Street
Becker, Philip	Holyoke	67 Hitchcock Street, Holyok
Benemelis, Robert Lorenzo	Holyoke	800 North Pleasant Street
Bernstein, Robert Harold	Springfield	Tau Epsilon Phi
Beytes, Deane Allen	North Plymouth	Kappa Sigma
Blake, Richard Franklin	Southville	Q. T. V.
Blasko, John Edward	Amherst	238 Sunset Avenue
Blauer, Harris	Arlington	215 Sunset Avenue

[1] Candidate for the degree of Bachelor of Vocational Agriculture.

Bluemer, Charlotte Esther	Holyoke	85 Southampton Road, Holyoke
Bowen, Earl Kenneth	West Springfield	President's House
Bowler, Richard Norman	Westfield	Lambda Chi Alpha
Bowman, Louise	Medford	Phi Zeta
Boyd, Glenn David	Amherst	52 Fearing Street
Bradshaw, Marie Tullner	Chicopee Falls	116 East Pleasant Street
Brown, Roger Whittemore, Jr.	Lexington	Lambda Chi Alpha
Buckley, James Bernard	Springfield	Sigma Alpha Epsilon
Burakoff, Morris Hyman	Boston	Tau Epsilon Phi
Burns, Herbert Vane	Gloucester	204 Lincoln Avenue
Carpenter, Millicent	Worcester	Phi Zeta
Carroll, Leo Gary	Bridgewater	Colonial Inn
Chalfen, Melvin Harold	Brookline	Tau Epsilon Phi
Chapin, Hazel Ruth	Sheffield	76 Fearing Street
Chapman, Robert Morgan	Belmont	Kappa Sigma
Clark, Edith Marjorie	Sunderland	Sunderland
Cohen, Isadore	Dorchester	Tau Epsilon Phi
Cole, Frederick John	Springfield	18 Old Town Road
Cooper, Kathleen Freda	Amherst	36 Mt. Pleasant
Copson, David Arthur	Dorchester	Phi Sigma Kappa
Corcoran, Anne Katherine	Stoneham	Sigma Beta Chi
Cowling, Douglas Hadfield	West Concord	45 Phillips Street
Creesy, Lorraine	Newton	Phi Zeta
Creswell, Robert Miller	Worcester	Mt. Pleasant
Curran, George Morton	Northampton	17 Madison Avenue, Northampton
Dailey, Gerald Michael	Dorchester	Kappa Sigma
Daley, Frank Robert Lee, Jr.	Holyoke	Q. T. V.
Dalton, Frank Herbert	Greenefield	Phi Sigma Kappa
Davis, Franklin Milton, Jr.	Waltham	Theta Chi
Davis, Ida Bessie	East Taunton	82 North Prospect Street
Dec, Anne Sophie	Hadley	Hadley
Donahue, Charlotte Lee	Newton Lower Falls	Hadley
Doran, Katherine Hazel	Amherst	148 Lincoln Avenue
Dunham, Agnes Armstrong	Kinderhook, N. Y.	116 East Pleasant Street
Dunn, Robert Francis	Pittsfield	Lambda Chi Alpha
Eaton, Robert Bowker	Waltham	288 Triangle Street
Elberfeld, Richard Bourne	East Boston	321 Lincoln Avenue
Everson, Laura Verlin	North Amherst	1063 North Pleasant Street, North Amherst
Farnsworth, Reaetta Barbara	Worcester	Adams House
Fenton, Isabel Cathryn	West Springfield	33 Cosby Avenue
Ferriter, Paul Thomas	Westfield	Lambda Chi Alpha
Ferwerda, Vernon Le Roy	Amherst	Hotel Perry
Filios, John Edward	Westfield	Stockbridge Hall
Firth, Margaret Asquith	Lawrence	Alpha Lambda Mu
Flanagan, George Francis	Bridgewater	Sigma Phi Epsilon
Fleming, Urban Cyril	Holyoke	53 Howard Street, Holyoke
Foley, Robert Thomas	Turners Falls	24 Nutting Avenue
Foley, William Gregory	Salem	Lambda Chi Alpha
Foster, Willard Olcott	Marion	Theta Chi
Fox, Bernard Hyman	Malden	East Pleasant Street, Care of Winkler
Fram, Harvey	Worcester	Alpha Epsilon Pi
Freeman, Lawrence John	Southbridge	449 North Pleasant Street
Gale, Virginia	Marblehead	Sigma Beta Chi
Geoffrion, Philip Carl	West Springfield	Sigma Phi Epsilon
Glashow, Arnold Irving	Roxbury	414 North Pleasant Street
Glazier, Thelma Nellie	Leverett	Leverett
Gleason, Charles Leslie, Jr.	Hanover	Kappa Sigma
Glendon, Richard Russell	Winchester	Sigma Alpha Epsilon
Gordon, Mark Harold	Springfield	45 Phillips Street
Gould, Evelyn Atherton	Walpole	Phi Zeta
Graves, Myra Campbell	Sunderland	Sunderland
Greenberg, Sidney	Springfield	388 North Pleasant Street
Gregg, Burton William	Westminster West, Vt.	18 Old Town Road
Griffin, Harold Emory	Dorchester	Theta Chi
Hagelstein, Arthur Alexander	Stoughton	406 North Pleasant Street
Hager, Myron Dexter	South Deerfield	Inwood
Hall, Frieda Lillian	Braintree	Phi Zeta
Hall, John Walton	Marshfield	204 Lincoln Avenue
Hanley, Robert Hayes	Hopedale	Phi Sigma Kappa
Harding, Malcolm Bennett, Jr.	Westfield	Phi Sigma Kappa
Herrick, Thomas Waldo, Jr.	South Duxbury	Kappa Sigma
Hill, Ralph Brewer	Ipswich	Phi Sigma Kappa
Hopkins, Franklin Adelbert	Leverett	Leverett
Howe, Arthur Fenner	Brockton	179 Lincoln Avenue
Howe, Elizabeth Margaret	Pittsfield	Phi Zeta
Hoxie, Howard Mason	Northampton	44 North Elm Street, Northampton
Hughes, Fredrick Kenneth	Holyoke	33 Phillips Street
Irwin, Marjorie Buck	Palmer	Phi Zeta
Irzyk, Albin Felix	Salem	Q. T. V.
Jackson, Olive Georgina	Monson	76 Fearing Street
Jacobs, Priscilla	Holliston	82 North Prospect Street
Jakobek, John Chester	Hadley	Middle Street, Hadley
Jaquith, Richard Herbert	Northampton	179 Lincoln Avenue
Jewell, Eleanor Frances	Worcester	12 Pleasant Court
Johnson, Alberta Margaret	Southwick	Sigma Beta Chi

Johnson, Louis Fingal, Jr.	Gloucester	179 Lincoln Avenue
Johnson, Margery Deane	Ashland	35 McClure Street
Joyce, Robert Arthur	Florence	272 Amity Street
Kennedy, Robert Charles[1]	North Dartmouth	French Hall, M. S. C.
Keville, Francis Bartholomew, Jr.	East Lynn	Lambda Chi Alpha
Kohls, Rosa Frieda Emma	Dorchester	Alpha Lambda Mu
Krowka, Stanley Joseph	Northampton	108 Franklin Street, Northampton
Langworthy, Everett Walter	Chester	Phi Sigma Kappa
Lavrakas, Vasilis	Watertown	215 Sunset Avenue
Leete, Catherine Martin	Briarcliff Manor, N. Y.	Phi Zeta
Lepine, Arthur Joseph	Holyoke	203 Lincoln Avenue
Levy, Roma Dina	Pittsfield	34 Nutting Avenue
Lindsey, Roger Hurlin	Ware	18 Old Town Road
Little, Barbara	Newburyport	12 Pleasant Court
Little, Virginia	Saugus	20 Allen Street
Luce, Nancy Elizabeth	Fitchburg	Sigma Beta Chi
Mahoney, Donald John	Holyoke	Kappa Sigma
Malcolm, James Walter	Holyoke	401 North Pleasant Street
Malins, Dana Harold	Brighton	Alpha Epsilon Pi
Malm, Irma Isabel	Worcester	Adams House
Mansfield, Charles Francis	Taunton	Phi Sigma Kappa
Marshall, Helen Allison	South Hadley Falls	Adams House
Martin, Robert Ansel	Pittsfield	24 Nutting Avenue
Matuszko, Victoria Katherine	Amherst	R. F. D. No. 3
McAndrew, Gerald Edward	Barre	813 North Pleasant Street
McCowan, William Blake	Worcester	Alpha Sigma Phi
McLaughlin, Charles LeGros	Amherst	14 Nutting Avenue
Merrill, John Edward, Jr.	Southbridge	Kappa Sigma
Miller, John Calvin	Charlton	395 North Pleasant Street
Monk, Carolyn Emma	Groton	971 North Pleasant Street, North Amherst
Moriece, Paul	New Haven, Conn.	French Hall, M. S. C.
Morley, Dorothy Ruth	Amherst	12 Pleasant Court
Morrison, John Roderick[1]	Boston	112 Cottage Street
Morse, Roy Earl	Boston	Kappa Sigma
Moseley, Maynard Fowle	Allston	800 North Pleasant Street
Mosher, Robert Henry	Holyoke	Alpha Sigma Phi
Muller, Richard Kenneth	Amherst	41 Fearing Street
Murphy, Robert Joseph	Springfield	Phi Sigma Kappa
Nelson, Carl Felix, Jr.	Gardner	American Legion House
Neznayko, Michael	Hadley	452 West Street, Hadley
Nietupski, Dominic Edward	North Wilbraham	33 Phillips Street
Norwood, Lewis Frank[1]	Rockport	French Hall, M. S. C.
Novelli, G. David	North Agawam	Alpha Sigma Phi
Noyes, Arthur Alfred	Waban	Theta Chi
Nutting, William Brown	West Boylston	39 Old Town Road
O'Connell, Daniel John	South Hadley Falls	Sigma Alpha Epsilon
Oertel, Priscilla May	South Hanson	76 Fearing Street
O'Neill, John Raymond	Holyoke	33 Phillips Street
Osmun, John Vincent	Amherst	78 Northampton Road
Page, Tracy Omar	Springfield	Kappa Sigma
Palumbo, Ralph Francis	Leominster	Stockbridge Hall, M. S. C.
Patton, Willard Ginn	North Amherst	110 Meadow Street, North Amherst
Pease, Virginia Helen	Amherst	47 East Pleasant Street
Pelissier, Helene Elizabeth	Hadley	Lambda Delta Mu
Phillips, Lester LeRoy, Jr.	Pittsfield	14 Cosby Avenue
Pike, Kenneth Vernon	Pittsfield	Alpha Sigma Phi
Pitts, George Thomas, Jr.	Beverly	President's House
Plichta, Richard John	Amherst	Strong Street
Podolak, Edwin Michael	Hadley	Middle Street, Hadley
Powers, Charles Arthur, Jr.	Braintree	Kappa Sigma
Powers, John Joseph, Jr.	Pittsfield	Sigma Alpha Epsilon
Pratt, Esther	Greenwood	76 Fearing Street
Prouty, Leroy Fletcher, Jr.	Springfield	318 Lincoln Avenue
Reagan, Lawrence Hunneman	Dorchester	Clark Hall, M. S. C.
Reed, Ralph Herbert	Northfield	30 Chestnut Street
Reinap, Mia	Framingham	50 Farview Way
Reisman, Melvin	Brighton	Tau Epsilon Phi
Rice, Katherine Louise	Springfield	35 McClure Street
Richards, William Henry, Jr.	Northampton	Lambda Chi Alpha
Robitaille, Roger Gilbert	Holyoke	417 North Pleasant Street
Rodman, Robert	Dorchester	Alpha Epsilon Pi
Rogosa, Mary	Lynn	128 East Pleasant Street
Rossman, Edwin Malcolm	Brookline	389 North Pleasant Street
Rourke, Dorothy Jean	Springfield	34 Nutting Avenue
Rudge, Alfred Howard	Worcester	215 Sunset Avenue
Ryan, Winslow Edwin	Hudson	Thatcher Hall
Saltzman, Theodore	Roxbury	15 McClellan Street
Sanderson, James Joseph	Becket	800 North Pleasant Street
Santucci, Leo Joseph	Palmer	Stockbridge Hall, M. S. C.
Saunders, Francis Richard	Gloucester	Phi Sigma Kappa
Sawyer, David	Dorchester	Alpha Epsilon Pi
Scholz, Evi C.	State Line	Alpha Sigma Phi
Schoonmaker, Norman James	Amherst	South East Street
Schreiber, Henry Marcus	Winthrop	Alpha Epsilon Pi
Serex, John Paul	Amherst	327 Lincoln Avenue
Shapiro, Everett	Mattapan	Tau Epsilon Phi
Shaw, Donald Houghton	Belmont	45 Phillips Street

[1] Candidate for the degree of Bachelor of Vocational Agriculture.

Shaw, Marjorie	Belchertown	Adams House
Sheldon, Robert Irving	West Springfield	Lambda Chi Alpha
Shepardson, Daniel Edgar	Athol	Sigma Alpha Epsilon
Shepardson, Wilfred Britton	Athol	Sigma Alpha Epsilon
Sherman, Arthur	Lanesboro	18 Nutting Avenue
Silfen, Alfred Jay	Springfield	223 Sunset Avenue
Slater, Edgar Burton	Tyringham	382 North Pleasant Street
Smalley, Dorothea Florentina	Worcester	Adams House
Smith, Frank Browne	Holyoke	10 Parker Street, Holyoke
Smith, Marjorie Marion	Springfield	35 McClure Street
Spelman, George Joseph	Pittsfield	Q. T. V.
Spencer, Everett Royal, Jr.	Holyoke	Kappa Sigma
Spofford, Elizabeth Harriet	Lee	Sigma Beta Chi
Spungin, Sidney	Greenfield	Tau Epsilon Phi
Stahlberg, Eric	Northampton	Kappa Sigma
Staples, Robert	Northampton	83 Olive Street, Northampton
Stewart, Jacqueline Louise	Amherst	315 Lincoln Avenue
Stewart, Mary Allerton	South Duxbury	Adams House
Stranger, Homer Lincoln	North Plymouth	Alpha Sigma Phi
Straube, Harold Louis	Bloomfield, N. J.	Theta Chi
Sullivan, Albert William	South Hadley Falls	West Experiment Station
Sullivan, Arthur Ellis	Palmer	63 Park Street, Palmer
Sullivan, Eugene Francis	Willimansett	8 Maplewood Avenue, Willimanset
Swenson, John William	Worcester	Lambda Chi Alpha
Talbot, Gerald Lloyd	Springfield	Sigma Phi Epsilon
Tappan, David Scott	Boston	360 Main Street
Tappin, Warren Rawford, Jr.	Winchendon	Lambda Chi Alpha
Taylor, Roy Clifton	Greenfield	800 North Pleasant Street
Terry, Dean Thomas	Palmer	414 North Pleasant Street
Tiberii, Chester Howard	Charlton	Sigma Phi Epsilon
Tobey, George Burton, Jr.	Framingham	Alpha Sigma Phi
Turner, Rodney Charles	Falmouth Heights	33 Phillips Street
Twyble, Carlton William	Gilbertville	14 Cosby Avenue
Vannah, Margaret Viola	Monson	Adams House
Warner, Richard Stearns	Springfield	1013 North Pleasant Street
Webber, Helena Joan	Winchendon	26 Beston Street
Wetherbee, Robert Thomas	Bolton	449 North Pleasant Street
Wetherell, Howard Dexter	Westfield	Phi Sigma Kappa
Wheeler, Esther Hammond	Manchester, N. H.	82 North Prospect Street
Wilansky, Nathan Leonard	Holyoke	54 Ridgewood Avenue, Holyoke
Wing, Francis	Sandwich	Theta Chi
Winter, Wilfrid Murray	Wrentham	Alpha Gamma Rho
Wolfe, John Ferris	Winchester	Alpha Gamma Rho
Wood, Beatrice	West Upton	Phi Zeta
Wyman, Wallace Warren	Westfield	Alpha Gamma Rho
Zabierek, Julian Henry	Chelmsford	Q. T. V.
Zelbovitz, Myer Samuel	Chelsea	East Pleasant Street,

Class of 1941

Agambar, Rose Elaine	Holyoke	Birch Lawn, Care of Tuttle
Ahearn, Helene Dorothy	Winthrop	115 Blue Hills Road
Ajauskas, John Casty	Brighton	Q. T. V.
Allan, Donald Pearson	Fitchburg	215 Sunset Avenue
Alperin, Helen Faith	Holyoke	31 Chestnut Street
Alvord, Erma Stuart	Turners Falls	Phi Zeta
Anderson, Edward Everett	Middleton	30 North Hadley Road
Anderson, Rita Marjorie	East Bridgewater	North Amherst Care of Mrs. Cooley
Antaya, Helen Mae	Ware	Adams House
Archibald, Gladys Glencross	North Amherst	164 Montague Road
Archibald, Priscilla Bales	Watertown	Phi Zeta
Arslanian, Lillian Arcine	Springfield	97 Lincoln Avenue
Ashley, Edward Wilmarth	East Freetown	Colonial Inn
Atwater, George Leonard	Westfield	Phi Sigma Kappa
Auerbach, Gabriel Irving	Springfield	Mt. Pleasant Inn
August, George Sterling	Northampton	34 Columbus Avenue Northampton
Aykroyd, Albert Wesley	Worcester	401 North Pleasant Street
Babbitt, Robert Todd	Wellesley Hills	Kappa Sigma
Badger, Ellen Priscilla	Norwood	12 Sunset Court
Bagge, Francis Gerald	Hyde Park	42 McClellan Street
Bailey, Cynthia Haven	Kingston	Phi Zeta
Baker, Harry Louis	Malden	417 North Pleasant Street
Ball, Annetta	Dalton	Phi Zeta
Balmer, Edward	Whitinsville	Mt. Pleasant Inn
Bardwell, Allan Ralph	Florence	122 Pine Street, Florence
Barney, Charles Henry	South Hadley	382 North Pleasant Street
Barreca, Peter Joseph	Pittsfield	407 North Pleasant Street
Barrus, Ruth Emeline	Goshen	Sigma Beta Chi
Bartosiewicz, Joseph	Northampton	51 Maple Street Northampton
Bascom, Elizabeth Blanche	Leverett	Leverett
Bassett, Cortland Amidon	Athol	382 North Pleasant Street
Beaubien, Rosalie Agnes	Millers Falls	Birch Lawn, Care of Tuttle
Beckett, Norman James	Somerville	41 Cosby Avenue
Bergstrom, Evelyn Sofia	Pittsfield	93 Fearing Street
Bernson, Richard Jolles	Brookline	Alpha Epsilon Pi
Bialer, Isaac	Holyoke	42 Union Street, Holyoke

Biederman, Jerome	Mattapan	East Pleasant Street Care of Winkler
Blodgett, Richard Alden	Springfield	Lambda Chi Alpha
Bolt, Ernest Albert, Jr.	Windsor	401 North Pleasant Street
Bornstein, Merton Philip	Winthrop	18 Nutting Avenue
Bourne, John Bodfish	Buzzards Bay	33 Phillips Street
Brack, John Joseph	Dorchester	Q. T. V.
Bradley, Roberta Helen	Southfield	44 Fearing Street
Bragdon, George William	Methuen	45 Phillips Street
Breglio, Robert Anthony	Chicopee	409 North Pleasant Street
Brewster, David Truman	Hathorne	395 North Pleasant Street
Brielman, Marguerite	Pittsfield	43 Fearing Street
Broderick, Edward	Willimansett	Alpha Gamma Rho
Brown, Elizabeth Willard	Holyoke	40 Norwood Terrace, Holyoke
Budz, Chester Herman	Housatonic	Kappa Sigma
Burgess, Shirley Marie	Brockton	Phi Zeta
Burr, Clement Franklin	Easthampton	382 North Pleasant Street
Cadwell, Garnet Louise	Orange	12 Sunset Court
Callanan, Katherine Tappan	Braintree	20 Allen Street
Campbell, Sylvia	Palmer	277 Triangle Street
Cashman, Robert Norman	Easthampton	Sigma Phi Epsilon
Chaffin, Mary Elizabeth	Hyannis	870 North Pleasant Street
Clare, Kathleen Jean	Easthampton	43 Fearing Street
Coates, Virginia Mae	New Bedford	6 Dana Street
Coffey, William Sebastian	Northampton	9 Sanderson Avenue Northampton
Cohen, Arthur Irving	Springfield	417 North Pleasant Street
Cohn, Herbert Morton	Springfield	388 North Pleasant Street
Cole, Alton Brigham	West Medway	Alpha Gamma Rho
Crafts, Elizabeth Mary	Whately	Adams House
Crerie, Richard Graham	Worcester	Theta Chi
Crimmin, Ruth Lillian	West Roxbury	12 Sunset Court
Crimmins, John Paul	Worcester	382 North Pleasant Street
Critchett, Barbara Jane	Amherst	Sunset Court
Cunningham, Donald Edward	Gloucester	750 North Pleasant Street
Curtis, Richard Browne	Marlborough	Theta Chi
Davenport, George Godfrey, Jr.	Mendon	Phi Sigma Kappa
Davis, Edward Lawrence	Chelsea	382 North Pleasant Street
Davis, Jean Anwyl	Waltham	Sunset Court
Decker, Muriel Elinor	Holyoke	145 Westfield Road Holyoke
Delorey, Marion Elaine	Pittsfield	12 Sunset Court
De Palma, Esther	Feeding Hills	Draper Hall
Desmond, Betty	Simsbury, Conn.	Lambda Delta Mu
Dondero, Norman Carl	Medford	14 Cosby Avenue
Downs, Currie Hayes	East Lynn	Alpha Sigma Phi
Doyle, Mary Rita	Holyoke	18 Lynwood Avenue Holyoke
Drew, Franklin Harmon	Dalton	449 North Pleasant Street
Drew, Frederick Prescott	East Dedham	13 Nutting Avenue
Dukeshire, Robert Elsworth	Hopkinton	449 North Pleasant Street
Erikson, George Emil	Palmer	125 Shearer Street, Palmer
Everson, Margaret Lucille	North Amherst	1063 North Pleasant Street, North Amherst
Ewing, Robert Stanley	Easthampton	Pine Street, North Amherst
Farber, Robert Dasher	Dorchester	15 McClellan Street
Favorite, William	Brookline	265 East Pleasant Street
Feiker, George Campbell	Washington, D. C.	Sigma Alpha Epsilon
Field, Frances Rosalie	Holyoke	51 Lawler Street, Holyoke
Finnegan, Eugene Joseph	Boston	38 Cosby Avenue
Firestone, Robert David	Holyoke	18 Nutting Avenue
Fish, Gladys Elizabeth	Pittsfield	12 Sunset Court
Fitch, Helen Julia	Pittsfield	115 Blue Hills Road
Flynn, Edward John	Dalton	401 North Pleasant Street
Flynn, Margaret	Willimansett	93 Fearing Street
Foley, Arthur James Gleason	Ashmont	8 Nutting Avenue
Forrest, Harold Everett	Athol	Sigma Alpha Epsilon
Fotos, George	Amherst	351 Main Street
Frandsen, Dana Christian	Amherst	179 Lincoln Avenue
Frank, David Allen	Roxbury	Alpha Epsilon Pi
Franz, William Emil	Waterbury, Conn.	401 North Pleasant Street
Freedman, Marion Gertrude	Chelsea	41 Fearing Street
Friedman, Carl Emil	Roxbury	Alpha Epsilon Pi
Fuller, Allan Tacy, Jr.	East Bridgewater	Theta Chi
Fuller, William Hall	Lancaster	33 Phillips Street
Garbowit, George Albert	Pittsfield	414 North Pleasant Street
Giehler, Doris Madeline	Holyoke	61 Elmwood Avenue, Holyoke
Giles, Winifred Leslie	Cummington	2 Farview Way
Gilman, Harry Stanton	Brookline	Tau Epsilon Phi
Goode, Anthony John	Athol	Sigma Alpha Epsilon
Goodwin, Clinton Foster	Haverhill	Lambda Chi Alpha
Goodwin, William Francis	Winthrop	Kappa Sigma
Goodwin, William Thomas	South Hadley	Sigma Alpha Epsilon
Gould, John Davidson	Hadley	The President's House
Grise, Marcelle Joan	North Brookfield	Sigma Beta Chi
Grise, Pauline Viola	Ware	Care of Mrs. W. Jones, North Amherst
Hall, Robert Edward	Upton	Kappa Sigma
Halloran, Robert Francis	Northampton	146 Federal Street, Northampton

Hamel, George Felix	Worcester	382 North Pleasant Street
Harrington, Anna Elizabeth	Amherst	148 High Street
Hartley, Louise May	Westfield	43 Fearing Street
Haskell, John William	Arlington	215 Sunset Avenue
Hathaway, Wilfred Bostock	Taunton	30 North Hadley Road
Hayes, John Michael, Jr.	Worcester	Lambda Chi Alpha
Hayward, Richard Bascom	Taunton	30 Chestnut Street
Hendrickson, William Arlington, Jr.	Scituate	North Pleasant Street
Henschel, Vivian Victoria	Boston	Adams House
Herring, Mary Eleanor	Ulster Park, N. Y.	Adams House
Hershberg, Bernard J.	Gardner	Tau Epsilon Phi
Heyman, John Taylor	Springfield	Lambda Chi Alpha
Hood, Calvin Henry, Jr.	Northampton	Rockland Heights Northampton
Howland, Kenneth Arthur	South Duxbury	750 North Pleasant Street
Hoxie, George Perkins	Northampton	31 Bridge Street Northampton
Hoye, Marion Barbara	Taunton	12 Sunset Court
Hubbard, Ervin Stuart, Jr.	Poughkeepsie, N. Y.	Theta Chi
Hunt, Ransom Willard	Arlington	449 North Pleasant Street
Hutchinson, Phyllis Dean	Rochdale	Adams House
Irvine, Walter Graves, Jr.	Worcester	Theta Chi
Jackinczyk, Stanley Arthur	Florence	13 Oak Street, Florence
Jacobson, Woodrow Richard	Ivoryton, Conn.	39 Pine Street, North Amherst
Jamison, James Young	Newtonville	401 North Pleasant Street
Johnson, Doris Marie	Springfield	20 Allen Street
Johnson, Thomas Wells	Deerfield	Deerfield
Johnston, Irene	Easthampton	18 Main Street Easthampton
Jones, Carleton Parker	Amherst	22 Nutting Avenue
Jones, Mary Jane	Worcester	41 Fearing Street
Jones, Robert Lincoln	Princeton	Care of Mrs. Bangs Mt. Pleasant
Josephson, Elliot Harold	Boston	15 McClellan Street
Joyce, William Alan	Florence	291 Locust Street Florence
Kagan, David Milton	Brooklyn, N. Y.	417 North Pleasant Street
Kaplan, Sumner Zalman	Brookline	Alpha Epsilon Pi
Keil, Dana Alton	Attleboro	Phi Sigma Kappa
Kell, Kathleen Margaret	Stoughton	44 North Prospect Street
Keller, Paul Zelman	Springfield	Alpha Epsilon Pi
Kenny, Loretta Christine	Palmer	17 Rockview Street, Palmer
King, Edwin Wallace	Melrose	42 McClellan Street
King, Howard Francis, Jr.	Millville	Alpha Sigma Phi
King, James Herbert, Jr.	Worcester	Theta Chi
King, Mary Doris	Gardner	Lambda Delta Mu
Kirsch, John Forrest	Springfield	Theta Chi
Klaman, Solomon	Boston	Alpha Epsilon Pi
Klevens, Milton	Boston	90 Fearing Street
Kline, James Jacob	Dorchester	Alpha Epsilon Pi
Knight, Richard Hooper	Melrose	414 North Pleasant Street
Koobation, Hiag[1]	Worcester	14 Cosby Avenue
Krawiec, Regina Genevieve	Belchertown	43 Fearing Street
Kuhn, Marian Erna	Easthampton	31 Chestnut Street
Kuralowicz, Chester Leon	Willimansett	Alpha Gamma Rho
LeFreniere, Edward Amedee	Chicopee Falls	401 North Pleasant Street
Lalor, Walter Russell	Framingham	Farm House
Lane, Helen Elizabeth	East Boston	Adams House
Lane, Priscilla Elizabeth	Brockton	93 Fearing Street
Lanson, Raino Kullervo[1]	Worcester	Alpha Gammo Rho
Laudani, Hamilton	Lawrence	401 Pleasant Street
Lavitt, Edwin Mitchell	Rockville, Conn.	Tau Epsilon Phi
Leavitt, Stephen Bartlett	New Bedford	334 Lincoln Avenue
Lennon, William Henry	Medford	65 Farview Way
Leonard, Thomas Richard, Jr.	Raynham Center	30 Chestnut Street
Lester, Richard Henry	Ware	Lambda Chi Alpha
Levine, Daniel Herman	Mattapan	Tau Epsilon Phi
Levitch, Gerald Joseph	Greenfield	98 Conway Street, Greenfield
Levy, Beulah Sarah	Worcester	41 Fearing Street
Lobacz, Bertha Elizabeth	Amesbury	12 Sunset Court
Long, Dorothy Jean	Malden	41 Fearing Street
Lotow, Jason Ronald	Brighton	Alpha Epsilon Pi
Lovell, Rebecca West	Worcester	80 Fearing Street
Lucchesi, Flora Dora	Holyoke	277 Triangle Street
Maisner, Stella Ruth	Leverett	Leverett
Manix, John Charles	South Deerfield	Alpha Gamma Rho
McCallum, Howard James	Northampton	Kappa Sigma
McCarthy, Harold Timothy	Salem	Q. T. V.
McCarthy, Richard James	Westfield	382 North Pleasant Street
McCartney, Robert Joseph	Salem	318 Lincoln Avenue
McGurl, Frederick Wilson	Worcester	38 Cosby Avenue
Meder, Joseph Francis	Northampton	244 North Street, Northampton
Merritt, Bertha Louise	Cataumet	Sigma Beta Chi
Meyer, Irving	Springfield	417 North Pleasant Street
Miles, Walter Theodore	Dalton	382 North Pleasant Street
Miller, Joseph Thomas	Barre Plains	Q. T. V.
Miller, Miriam	Brookfield	971 North Pleasant Street

[1] Candidate for the degree of Bachelor of Vocational Agriculture.

Millett, Marion Burnham	Adams	34 Nutting Avenue
Minich, Roy Linden	Malden	85 Fearing Street
Moody, Lincoln David	Amherst	84 Sunset Avenue
Moreau, Robert	Boston	71 North Pleasant Stree
Morrison, Sumner Martin	Roxbury	401 North Pleasant Stre
Morytko, John Charles	Westfield	33 Phillips Street
Motroni, Umberto Pasquale	Boston	414 North Pleasant Stre
Mulvey, Glenn Orville	Springfield	388 Pleasant Street
Nastri, Carl Albert	New Haven, Conn.	382 North Pleasant Stre
Nye, John William	Needham	418 North Pleasant Stre
O'Brien, Edward Joseph	Amherst	36 Nutting Avenue
O'Connor, J. Edward Emett	Holyoke	382 North Pleasant Stre
O'Neil, Florence Marie	Ludlow	80 Fearing Street
Oppenheim, Edward Elliot	Brockton	11 Paige Street
Ouderkirk, Merton Howard	Brockton	19 Allen Street
Pardee, Robert Everett	Springfield	163 Northampton Road
Parzych, Henry Myron	Greenfield	179 Lincoln Avenue
Paul, Christopher	Dorchester	Alpha Sigma Phi
Pava, Arthur Avrum	Springfield	413 North Pleasant Stre
Payson, James Warren, Jr.	Millis	Theta Chi
Perry, Richard Lewis	Springfield	259 Lincoln Avenue
Peters, Robert Rice	Hamden, Conn.	Theta Chi
Phillips, Phyllis Jeanne	Pittsfield	Phi Zeta
Plichta, Rose Helena	Amherst	Strong Street
Powers, Wallace Frank, Jr.	Amherst	30 Fearing Street
Procopio, Paul Nicholas	Brockton	401 North Pleasant Stre
Prusick, Alfred Adam	Greenfield	Alpha Sigma Phi
Prymak, John Joseph	Lawrence	33 Phillips Street
Puffer, Jean	Foxboro	3 Cosby Avenue
Pulnik, Bruno Francis	Hopkinton	Durfee Plant House
Putney, Chester Carlos	Orleans, Vt.	461 North Pleasant Stre
Reder, Lionel George	Pittsfield	Eames Avenue
Reed, Andrew John III	Chicago, Ill.	902 North Pleasant Stre
Reed, Stanley Copeland	Brockton	Alpha Sigma Phi
Retallick, John David	Pittsfield	Theta Chi
Reynolds, Helena Elisabeth	Worcester	80 North Prospect Street
Reynolds, Iona Mae	Thorndike	93 Fearing Street
Richardson, Edward Adams	Ayer	38 Cosby Avenue
Richardson, Virginia Alice	Medford	31 Chestnut Street
Riseberg, Robert Bertram	Waltham	90 Fearing Street
Robbins, Patricia Jane	Worcester	12 Mt. Pleasant Court
Robinson, Ada Margaret	Concord	12 Sunset Court
Rockwood, Walter Clark, Jr.	Walpole	Theta Chi
Rodriquez, Robert Ames	Northampton	Mt. Pleasant Inn
Roffinoli, Rino Joseph	Williamstown	Alpha Sigma Phi
Rojko, Anthony Stanley	Hadley	East Street, Hadley
Ross, Doris Marie	Holyoke	2 Sunset Court
Ross, Walter Albert, Jr.	Springfield	12 Colony Court
Rouffa, Albert Stanley	Cambridge	417 North Pleasant Stre
Sanborn, Lee Lawrence	Holyoke	72 High Street, Holyoke
Sanderson, Patience Monteith	West Roxbury	12 Sunset Court
Schenker, Hanssen	Holyoke	44 Brookline Avenue, Holyoke
Scollin, Harold Vincent, Jr.	North Quincy	Kappa Sigma
Scully, Marion Elizabeth	Pittsfield	12 Sunset Court
Searle, David Harold, Jr.	Marblehead	Mt. Pleasant Inn
Seaver, Irving Willard	Shrewsbury	Theta Chi
Shanker, Benjamin Harold	Wrentham	417 North Pleasant Stre
Shaw, Bernice Mae	Belchertown	484 North Pleasant Stre
Shaw, Samuel Pettee	Middleboro	44 Mt. Pleasant
Sherman, Muriel Edith	Palmer	Phi Zeta
Siegal, Sidney Carl	Winthrop	Care of Winkler East Pleasant Street
Siegel, Robert	Dorchester	Alpha Epsilon Pi
Silverman, Alan	Roxbury	Alpha Epsilon Pi
Simmons, Ralph Eugene	Pittsfield	
Simons, Frank Melville	Stoneham	Lambda Chi Alpha
Skogsberg, Paul Lester	Worcester	30 North Hadley Road
Skolnick, David	Roxbury	Care of Winkler East Pleasant Street
Slack, Tracy Bernard, Jr.	North Amherst	North Amherst
Slattery, Francis Leo	Dorchester	Kappa Sigma
Smith, Carlton Vernon	North Brookfield	Alpha Gamma Rho
Smith, Elmer William	Florence	18 West Center Street, Florence
Smith, Frederick Edward	Bloomfield, N. J.	Q. T. V.
Smith, Helen Margaret	Athol	Alpha Lambda Mu
Smith, John	Southwick	Alpha Gamma Rho
Smith, Richard Neilson	Chicopee Falls	384 East Street Chicopee Falls
Snyder, Beverley	Springfield	277 Triangle Street
Sobon, Matilda Martha	Lawrence	13 Summer Street, North Amherst
Soule, George Hodges	Springfield	14 Cosby Avenue
Spencer, Frank Henry	Northampton	439 Elm Street, Northamp
Spungin, Benjamin	Worcester	177 Bridge Street, Northampton
Stein, Lucille Helen	Springfield	15 Meredith Street, Springfield
Steinhurst, Hyman Julius	Boston	Tau Epsilon Phi

Stewart, James Alexander	Amesbury	Lambda Chi Alpha
Stewart, John Bushnell	Worcester	Kappa Sigma
Storey, Harold Frederick	Millis	Theta Chi
Streeter, Ronald Mather	Holyoke	Theta Chi
Styler, Charles William	Jefferson	Alpha Gamma Rho
Sullivan, Mary Margaret	Brimfield	12 Sunset Court
Taylor, Jean Frances	Watertown	12 Sunset Court
Thayer, Raymond Winchell	Duluth, Minn.	Mt. Pleasant Inn
Thomas, Mildred Arlene	Amherst	R. F. D. 3, Box 157
Thornton, Henry Smith	Amherst	77 East Pleasant Street
Tillson, Robert Connor	Cochituate	6 Mount Pleasant
Tolman, Barbara	Worcester	107 East Pleasant Street
Tolman, Marion Esther	Gilbertville	Alpha Lambda Mu
Tolman, Phyllis	Worcester	107 East Pleasant Street
Tormey, Mary Margaret	Lee	12 Sunset Court
Trees, Malcolm Parker	Maynard	77 East Pleasant East
Tully, Kathleen Mildred	Southbridge	Adams House
Tuttle, Matthew Nathan	Revere	296 North Pleasant Street
Twible, Ellsworth Arnold	Gilbertville	14 Cosby Avenue
Tyler, Jean Gates	Amherst	Stockbridge House
Tyring, Marjorie Hope	North Scituate, R. I.	107 East Pleasant Street
VanMeter, David	North Amherst	167 Montague Road, North Amherst
Vassos, Eleanore Mildred	Springfield	20 Cosby Avenue
Vieweg, Herman Charles	Fitchburg	449 North Pleasant Street
Vincent, Richard Woytisek	Westfield	Phi Sigma Kappa
Walker, James Dexter	Pelham	R. F. D., Amherst
Walkey, Thomas Edward	South Hanson	Kappa Sigma
Walsh, William Thomas	Feeding Hills	409 North Pleasant Street
Waltermire, Kenneth Frank	Springfield	274 North Pleasant Street
Wannlund, Arthur Leonard, Jr.	Arlington	30 North Hadley Road
Warner, Everett Lee	Amherst	163 Northampton Road
Warren, William Fitts	West Roxbury	318 Lincoln Avenue
Washburn, Arthur Wendell	North Attleboro	Alpha Gamma Rho
Wentworth, Eleanor Elizabeth	Amherst	Stanley Street
Wheatley, Harriet Elizabeth	Chester, Vt.	Alpha Lambda Mu
Wileikis, Walter Anthony	North Amherst	91 Summer Street
Witt, Kenneth Douglas	Granby	R. F. D. 1, Granby
Wozniak, Nellie Marie	Turners Falls	Adams House
Wright, Dorothy Eleanor	Lee	128 East Pleasant Street
Yanow, Albert	Dorchester	90 Fearing Street
Youland, Dorothy Marion	West Somerville	76 Fearing Street

Class of 1942

Abrahamson, Melvin	Greenfield	Thatcher Hall
Abrams, Louis	Dorchester	Thatcher Hall
Adams, Paul Joseph, Jr.	Feeding Hills	Thatcher Hall
Adelson, Dorothy Eleanor	Holyoke	Adams House
Alger, Nancy Strowbridge	Middleboro	Adams House
Andrew, Richard Colwill	Florence	18 Plymouth Avenue, Florence
Angell, Doris Elva	Westfield	Adams House
Arnold, Gilbert Stetson	Southwick	Thatcher Hall
Aroian, Haig	Oxford	Thatcher Hall
Atwood, Dorothea Eve	Feeding Hills	Adams House
Atwood, Milford Walter	Holyoke	North College
Avery, Marion Rachel	Topsfield	Adams House
Avery, Winthrop Boynton	Shrewsbury	Thatcher Hall
Bailey, Charles Winthrope	North Dartmouth	North College
Balaban, Dan	South Boston	41 Phillips Street
Banuzkewic, Matilda Ida	Pittsfield	Adams House
Barney, Elizabeth Ann	West Roxbury	Adams House
Barrows, Marjorie Lucile	Auburn	Adams House
Barton, Everett Wilbur	North Adams	41 Phillips Street
Barton, Stephen Halsey	Amherst	15 McClure Street
Beauregard, Constance Jean	Holyoke	Adams House
Beck, Morris Leo	Boston	Thatcher Hall
Belk, Kate Alice	Montague	31 Cottage Street
Benemelis, Leslie Ross	Holyoke	Thatcher Hall
Bennett, George Neil	South Hadley Falls	North College
Benoit, George Francis	Springfield	Thatcher Hall
Bentley, Barbara Tucker	Northampton	54 Belmont Avenue, Northampton
Berry, Mary Elizabeth	Weymouth	Draper Hall
Berthiaume, Marguerite Doris	Springfield	Adams House
Bickford, Ralph Merton	Lunenburg	Thatcher Hall
Bishop, Charles Fredrick	East Walpole	Thatcher Hall
Bishop, Lester John	Huntington, N. Y.	Thatcher Hall
Blackburn, Justine Betty	Lanesboro	Adams House
Bloom, Harold Jakob	Dorchester	Thatcher Hall
Bloom, Morris	Dorchester	Thatcher Hall
Bowler, Mary Louise	Westfield	Adams House
Brady, John Edward, Jr.	Greenfield	237 Federal Street, Greenfield
Brotz, John Haper	Chelmsford	Thatcher Hall
Brown, Esther Mather	Feeding Hills	Adams House
Brunell, Harvey James	Worcester	Thatcher Hall

Bullock, James Gerard	Arlington	East Experiment Station, M. S. C.
Burbank, David Farwell	Worcester	Thatcher Hall
Burke, Cathrine	North Amherst	90 Cowles Road, North Amherst
Burnham, Preston James	Lynn	Thatcher Hall
Burns, John Bernard	Forest Hills, L.I., N.Y.	Thatcher Hall
Butement, Barbara Myrle	Greenfield	Adams House
Buxbaum, Alan	Jamaica, N. Y.	Thatcher Hall
Callahan, James William	Sunderland	R. F. D. Sunderland
Cambridge, Ruth Elizabeth	Amherst	45 Hillcrest Place
Camp, Frank Rudolph, Jr.	Pittsfield	Thatcher Hall
Carlisle, Jean Burleigh	Saugus	Adams House
Carter, Daniel Robert	Wilmington	Thatcher Hall
Casazza, William Ernest	Merrimac	North College
Chase, Anna Muriel	Foxboro	Adams House
Clark, Frances Emma	West Springfield	Draper Hall
Clarke, Russell Tynan	Worcester	215 Sunset Avenue
Cochran, Philip Arthur	Somerville	Thatcher Hall
Coffin, Elizabeth Marie	Newburyport	Adams House
Coffin, Richard Freeman	Dorchester	Thatcher Hall
Cohen, Frank Irving	Lawrence	Thatcher Hall
Cohen, James David	Chelsea	North College
Cohen, Jason Sumner	Roxbury	North College
Cohen, Norman Freedman	Somerville	Thatcher Hall
Collier, Alan	Dorchester	North College
Conklin, Roscoe Wells	Hancock	Thatcher Hall
Conley, John Francis, Jr.	Brockton	North College
Cook, Marion Helen	Worcester	Adams House
Cooney, Ann Wilhelmina	Northampton	212 Bridge Street, Northampton
Coughlin, Francis Timothy	Taunton	Thatcher Hall
Couture, Virginia Agnes	Becket	50 Railroad Street
Cowan, William Allen	Pittsfield	Thatcher Hall
Cox, Richard Philip	Bridgewater	Thatcher Hall
Cressy, Richard William	Beverly	Thatcher Hall
Culver, Mildred	Easthampton	18 Park Street, Easthampton
Dakin, Ralph Kenyon	Dalton	Thatcher Hall
Daniels, Walter Thomas	Dalton	215 Sunset Avenue
Darrow, William Hinds	Putney, Vt.	North College
DiChiara, Rosalie Blaise	Holyoke	Adams House
Divoll, John William	Bellows Falls, Vt.	North College
Donahue, Mary Joan	Newburyport	Adams House
Donnelly, Robert Earl	Worcester	Thatcher Hall
Doubleday, Elwyn John	Amherst	R. F. D. No. 2
Doubleday, Lois Ella	Amherst	R. F. D. No. 2
Doyle, John Andrew	Pittsfield	Thatcher Hall
Drinkwater, Phyllis Louise	Taunton	49 Fearing Street
Drury, Mabelle Florence	South Bellingham	Adams House
Duffy, Kathryn Rita	Chicopee Falls	Adams House
Dunbar, Ernest Albert, Jr.	Barre	North College
Durland, Priscilla Florence	Swampscott	Adams House
Dwyer, Jack Lawrence	Pittsfield	Thatcher Hall
Dwyer, Paul Joseph	Winthrop	Thatcher Hall
Dwyer, William John, Jr.	Holyoke	Thatcher Hall
Eaton, Melville Bates	Watertown	Thatcher Hall
Ebeling, Althea Louise	Pittsfield	870 North Pleasant Street
Edminster, Talcott White	East Freetown	Thatcher Hall
Eldridge, Albert Coolidge	Somerville	Thatcher Hall
Emery, Clarence Nye	Westboro	Thatcher Hall
Emery, Joseph, Jr.	Boston	265 East Pleasant Street
Erickson, Carl Lambert[1]	Attleboro	Thatcher Hall
Erikson, Axel Vincent	Northampton	94 Massasoit Street, Northampton
Eskin, David Hoffman	Brookline	Thatcher Hall
Evans, William Theodore, Jr.	Pittsfield	North College
Everson, Robert Carroll	Amherst	M. S. C. Campus
Eyre, Mildred Mary	Northampton	111 Riverside Drive, Northampton
Farrand, Virginia Ruth	Savannah, N. Y.	Adams House
Farrell, Joseph William, Jr.	Pittsfield	Thatcher Hall
Fertig, Harry Eugene	Sheridan, Penn.	Thatcher Hall
Filios, Frederick Arthur	Woronoco	Thatcher Hall
Finkel, Myer Hyman	Roxbury	North College
Fiske, Wilma	Upton	Adams House
Fitzgerald, Ida Mary	Pepperell	Draper Hall
Fosgate, Fred Courtney	Hudson	Thatcher Hall
Fox, Edith	New Bedford	Adams House
Franz, Elinor Louise	Saylesville, R. I.	Adams House
Fredd, Sumner George	Dorchester	Thatcher Hall
Freitas, Edmund Freeman	Fairhaven	American Legion House
Frodyma, Michael Mitchell	Holyoke	88 High Street, Holyoke
Fyfe, Charles Glennie	Worcester	Thatcher Hall
Gale, Margaret Roberts	Northboro	Adams House
Gallagher, Marion Luella	Norwood	Adams House
Galley, Douglas Walter	Bridgeport, Conn.	Thatcher Hall
Gardner, John Joseph	Pittsburgh, Penn.	198 Sunset Avenue
Gassett, Ethel Kenfield	Whitman	Adams House
Gaumond, George Woodrow	Worcester	Thatcher Hall

[1] Candidate for the degree of Bachelor of Vocational Agriculture.

Gewirtz, Alan Irwin	New York, N. Y.	North College
Gilchrest, Charlotte	Lunenburg	Adams House
Gillette, Eleanor Irene	Towanda, Penn.	2 Mount Pleasant
Gillis, Kenneth Cooper	East Weymouth	Thatcher Hall
Gilman, James Wilbur	East Pepperell	Thatcher Hall
Girard, Theodore Alsdorf	Housatonic	Thatcher Hall
Glick, Saul Max	Boston	Thatcher Hall
Goldberg, Florence	Boston	Adams House
Goldman, Gertrude Helen	Chelsea	Adams House
Goldman, Joseph	Malden	Thatcher Hall
Golinsky, Harold Phflip	Dorchester	Thatcher Hall
Gooch, Stephen Francis	North Adams	30 North Hadley Road
Gordon, Joseph Robert, Jr.	Greenfield	8 Congress Street, Greenfield
Gordon, Sarah Shirley	Holyoke	Adams House
Graham, James Clifford	Middleboro	Thatcher Hall
Grayson, Dorothy Ann	Amherst	91 Cottage Street
Greenfield, Eric Leroy	Ware	Thatcher Hall
Hadley, Benjamin Levi, Jr.	Bar Harbor, Maine	Thatcher Hall
Hale, Pauline Jane	South Ashfield	Adams House
Hall, Martha Baird	Worcester	Draper Hall
Handforth, Norma Louise	West Medway	49 Fearing Street
Harding, Una Louise	Hudson	Adams House
Harley, Helen Marie	Lunenburg	Adams House
Hatch, Ralph Augustus	Boston	North College
Hayward, Dorothy Norma	Lexington	Adams House
Hebert, Rene Victor	Holyoke	North College
Heermace, Louise	New Haven, Conn	Adams House
Helyar, Ruth Miller	Brattleboro, Vt.	Adams House
Hibbard, Russell Elmer	North Hadley	North Hadley
Hobson, Robert Noble	Florence	9 Main Street, Florence
Holbrook, Robert Wilkinson	Milford	Thatcher Hall
Holmberg, Roy Herbert	Ashland	Thatcher Hall
Horgan, John Daniel	Belmont	Thatcher Hall
Horwitz, Harold	Dorchester	30 Hallock Street
Houlihan, James Dennis	Chicopee Falls	146 East Street, Chicopee Falls
Hunter, Howard Knapp	Pittsfield	North College
Hurley, James Michael	Northampton	19 Aldrich Street, Northampton
Hutchings, John	Amherst	R. F. D. No. 1, South Amherst
Hutner, Melvin	Springfield	North College
Hyman, Bertram Roy	Dorchester	Thatcher Hall
Janis, Helen Ruth	East Templeton	Adams House
Jodka, Joseph Thomas	Lawrence	132 High Street, Florence
Joffee, Irwin	Springfield	Thatcher Hall
Johnson, Eleanor Bliss	South Hadley	R. F. D., South Hadley
Johnson, Paul Alvion	Amherst	85 Fearing Street
Judge, Mary Elizabeth	Worcester	Adams House
Kagan, Abraham	Chelsea	North College
Kagan, Milton	Roxbury	Thatcher Hall
Kelleher, Marie	Sandwich	Adams House
Kennedy, Andrew Emmett	Holyoke	1475 Northampton Street, Holyoke
Kessler, Hyman Charles	Chelsea	Thatcher Hall
Ketchen, Gould	Belchertown	Belchertown
Kimball, George Edward	Amherst	99 East Pleasant Street
Kimball, William Warren	Amherst	99 East Pleasant Street
King, Elenor	Maynard	233 South Pleasant Street
Kirshen, Howard Robert	Mattapan	85 Fearing Street
Kirvin, Robert Joseph	Pittsfield	Thatcher Hall
Knox, Charles Henry, Jr.	East Longmeadow	Thatcher Hall
Kolodzinski, Charles George	Florence	93 Lake Street, Florence
Kozak, Mary Anne	Easthampton	49 Fearing Street
Krasnecki, Marrigan Samuel	North Chelmsford	Thatcher Hall
Krasnoselsky, Eva Mae	Shelburne Falls	Adams House
Lafleur, Vincent Arthur	Marlboro	15 McClellan Street
Laliberte, John Paul	Holyoke	Thatcher Hall
Langton, George Paul	Arlington	Thatcher Hall
Lappen, Frances Helen	Dorchester	Adams House
Lee, Donald Reed	Newton Highlands	33 Phillips Street
Leeper, Elizabeth Frances	Watertown	Adams House
Leland, Maurice Wright	Natick	Thatcher Hall
Lescault, Louis Ovila	Ware	33 Phillips Street
Lincoln, Waldo Chandler, Jr.	Ware	121 Church Street, Ware
Lind, Sylvan Morton	Brooklyn, N. Y.	North College
Lindsey, Joyce Hamilton	Ware	870 North Pleasant Street
Litchfield, George William	Wayland	Thatcher Hall
Lockhart, Agnes Elizabeth	Greenfield	Adams House
Long, Lewis Rice, Jr.	Worcester	Thatcher Hall
Lott, Henry Joseph	Roslindale	Thatcher Hall
Lucey, John Paul	Pittsfield	North College
Lyons, Hyman Arthur	Lawrence	Thatcher Hall
MacCormack, Charles Donald	West Medford	Thatcher Hall
MacDougall, Allister Francis	Carlisle	Thatcher Hall
MacNeill, Miriam Eunice	Plainville	49 Fearing Street
Mahan, William Edward	Lenox	Thatcher Hall
Maisner, Helen Kate	Leverett	Leverett
Marsh, John Peabody	Danvers	North College
Marsh, Margaret Wheeler	North Hatfield	North Hatfield

Martin, Lillian Gertrude	Worcester	Draper Hall
Mason, Richard Randall	Malden	Thatcher Hall
McCutcheon, Robert Clinton	South Deerfield	Thatcher Hall
McInerney, Phyllis Anna	Worcester	Adams House
McIntosh, William Francis	North Amherst	North Amherst
McLaughlin, George Edward	Amherst	14 Nutting Avenue
McLean, Harold Hubert	East Boston	North College
McLeod, Joseph Wright	Pepperell	Thatcher Hall
McNamara, Mary Jean	Brookfield	Adams House
Melnick, Walter	South Deerfield	Pine Nook, R. F. D., South Deerfield
Mendall, Ralph Bertrand, Jr.	Middleboro	Thatcher Hall
Merrill, Marjorie Edna	Lynn	Adams House
Mezoff, Albert Richard	Lynn	North College
Mikels, Albert	Boston	30 Hallock Street
Millman, George Harold	Mattapan	Thatcher Hall
Moffitt, Donald William	Northampton	1 Franklin Court, Northampton
Morrill, David Rupert	Rowley	Thatcher Hall
Morse, Freeman Edward	Lynn	North College
Mosher, Harold Elwood	Sterling	Thatcher Hall
Mosher, William John	Harrison, N. Y.	Thatcher Hall
Mothes, Arlene Marie	Hudson	Adams House
Mott, John Robert	North Attleboro	Thatcher Hall
Moulton, Betty Jane	Worcester	Adams House
Mullany, Robert Allaire	Hatfield	Thatcher Hall
Mushovic, Elsie Rose	Greenfield	356 Deerfield Street Greenfield
Nagelschmidt, Marion Louise	Pittsfield	Draper Hall
Nau, Otto Schaefer, Jr.	Greenfield	Thatcher Hall
Newell, Patricia Ann	West Roxbury	Adams House
Newell, William Andrews	Holyoke	16 Morgan Street, Holyoke
Nichols, Marjorie May	Amherst	146 Sunset Avenue
Nielsen, Sarah Louise	Needham	Adams House
Noon, Richard Edward	Hudson	Thatcher Hall
Northrup, Gordon Blanchard	East Pembroke	Thatcher Hall
Norwood, Howard Lysander	Holyoke	Thatcher Hall
Nottenburg, Robert Arthur	Waltham	Thatcher Hall
Noyes, Baxter Bardwell	Greenfield	127 Leyden Road, Greenfield
Ogan, Norman	Holyoke	Thatcher Hall
Olson, Louise Arlene	Amherst	P. O. Box 641
Pangborn, Elinor Jeanne	Watertown	Adams House
Papp, Stephen	North Falmouth	Thatcher Hall
Pearson, Robert Douglas	Briarcliff Manor, N.Y.	Thatcher Hall
Pearlman, Stanley	Roxbury	Thatcher Hall
Pederzani, Alice	Springfield	Adams House
Pelissier, Gertrude Anne	Hadley	Hadley
Perry, Robert Willard	Pittsfield	North College
Pierce, Andrew	Malden	10 Allen Street
Pierce, Richard Hurst	Longmeadow	Thatcher Hall
Plumb, Dorothy Florence	North Springfield, Vt.	Adams House
Plummer, Joseph Cook	Cranford, N. J.	Thatcher Hall
Politella, Violet Lillian	Lawrence	Adams House
Potter, Louise Frances	Ware	49 Fearing Street
Potter, Spencer Romeyn	Norfolk, Conn.	Thatcher Hall
Powers, John Francis, Jr.	Bradford	Thatcher Hall
Prest, Dorothy Boyd	Manchester	Adams House
Pruss, Harris	Lynn	North College
Pushee, Warren Merrill	Housatonic	Thatcher Hall
Putnam, James Nathaniel	Danvers	Thatcher Hall
Rabinovitz, Irving	Boston	North College
Rabinovitz, William	Roxbury	North College
Rabinow, Morton Bernard	Mattapan	Thatcher Hall
Radding, Robert Solin	Longmeadow	Thatcher Hall
Reynolds, Judith Clark	Richmond	Adams House
Rhines, Lorimer Pease	Westfield	Thatcher Hall
Richardson, Ellen	Baldwinville	Adams House
Rist, Donald Hammond	Leominster	18 Old Town Road
Robitaille, Doris Mary	Holyoke	870 North Pleasant Street
Rodman, Mitchell Sidney	Dorchester	North College
Rogosa, Israel Jay	Lynn	Thatcher Hall
Rosemark, Edward Morton	Dorchester	Thatcher Hall
Rosenbloom, Arthur Henry	Holyoke	Thatcher Hall
Rovno, Harry Richard	Fitchburg	Thatcher Hall
Rowe, Arthur Ernest	Springfield	Thatcher Hall
Rubenstein, Jacob	Boston	Thatcher Hall
Sargent, Harriett Newhall	Brockton	Adams House
Schubert, Elliot Vernon	Methuen	North College
Seery, John Joseph	Brookfield	Thatcher Hall
Selkregg, James Boynton	Holden	Thatcher Hall
Shackley, Frederic	Winthrop	Thatcher Hall
Shaw, Howard Westcott	Canton	Thatcher Hall
Shea, Alfred Francis	Florence	102 Oak Street, Florence
Shepardson, John Upham	Athol	Thatcher Hall
Shepardson, Theodore	Athol	Thatcher Hall
Shirley, Martha Irvine	Indian Orchards	Adams House
Simpson, Donald Angus	Holyoke	296 Franklin Street, Holyoke
Slack, Cornelius William	North Amherst	North Amherst
Smith, Eileen Frances	Vineyard Haven	Draper Hall
Smith, Esther Jane	Watertown	Adams House

Smith, Richard Rushton	Southwick	North College
Smolak, Henry Michael[1]	North Andover	Thatcher Hall
Snow, Richard Spofford	Orleans	449 North Pleasant Street
Solin, Myron	Holyoke	2039 Northampton Street, Holyoke
Sparks, Edward Francis	Pittsfield	Thatcher Hall
Sparling, Harold Judd, Jr.	East Bridgewater	Thatcher Hall
Staples, Frances Elizabeth	Stoughton	Care of Snyder, North Amherst
Steinberg, Maynard Albert	Fitchburg	Thatcher Hall
Stone, Abilgail Marie	Holyoke	14 Clark Street, Holyoke
Stone, Chester Cushing	Auburn	Thatcher Hall
Stone, Phoebe Isabelle	Brighton	12 Sunset Court
Stonoga, Benjamin	Watertown	Thatcher Hall
Sullivan, Donald James	Salem	Thatcher Hall
Sullivan, John Joseph	Chelsea	Thatcher Hall
Sunden, Howard Henry	Worcester	Thatcher Hall
Szmyd, Lucien	Holyoke	129 Walnut Street, Holyoke
Szwaluk, Peter Joseph	South Deerfield	Pine Nook, R. F. D. South Deerfield
Tarbell, Harriet Elizabeth	Brimfield	Adams House
Taylor, Raymond Ellsworth	Malden	Kappa Sigma
Tewhill, John Joseph	Northampton	16 Center Street, Northampton
Thayer, Donald Turner[1]	Worcester	Thatcher Hall
Tower, Phyllis Louise	Abington	Adams House
Triggs, Robert Xavier	Springfield	Thatcher Hall
Tripp, Edward Donald	Willimansett	Thatcher Hall
Trufant, Philip Arthur	Abington	Thatcher Hall
VanBuren, Meriel	Pittsfield	Draper Hall
Vantura, Vivian Joyce	Southbridge	Adams House
Wainshel, Barbara Cecile	Lynn	Adams House
Waite, Joann	Athol	Adams House
Waldron, Ann Gertrude	Northampton	15 Fifth Avenue, Northampton
Walker, Evelyn Elizabeth	Georgetown	Adams House
Wall, William James	Northampton	18 Adare Place, Northampton
Ward, Evra Althea	Springfield	49 Fearing Street
Ward, Francis Everett	Worcester	Thatcher Hall
Watt, Helen Agnes	Holyoke	183 Suffolk Street, Holyoke
Webber, Ruth Nancy	Bedford	Adams House
Weiner, Herbert	Mattapan	North College
Werme, Carl Pershing	Worcester	Stockbridge Hall
White, Paul Arthur	Somerville	Thatcher Hall
Whiting, Frederick Klemm	West Roxbury	Thatcher Hall
Whittemore, Phoebe	Sturbridge	Adams House
Wiley, Doris	West Medford	Adams House
Williams, Harold Edwin	Stockbridge	Thatcher Hall
Williams, William	Holliston	Thatcher Hall
Winer, Milton	Mattapan	North College
Winston, Paul Wolf	Marblehead	Thatcher Hall
Winthrop, Justin Irving	Lynn	Thatcher Hall
Wolf, Henry Robert	Mattapan	Thatcher Hall
Wolk, Louis	Dorchester	Thatcher Hall
Woodcock, Charles Martin, Jr.	South Hadley	Thatcher Hall
Workman, John Rodger	Essex, Ontario	11 Park Street, South Hadley
Yale, George Richard	Chelsea	Poultry Plant
Zeitler, Sydney	Malden	Thatcher Hall
Zielinski, Casimir Anthony	Holyoke	North College

SPECIAL STUDENTS

Atkinson, Edith D.	Amherst	51 Phillips Street
Bertrand, Adrian Gerald	Holyoke	
Broderick, Harold Matthew	Willimansett	169 Irene Street Willimansett
Derby, Llewellyn Light	Amherst	395 North Pleasant Street
Frame, Edward Minton	Rockland	18 Nutting Avenue
Parkinson, Leonard R.	Amherst	Nutrition Laboratory
Leveille, Norman Oreal	Holyoke	203 Lincoln Avenue
Spier, Louise B.	Northampton	Clarke School, Northampton
Washburn, Gordon Henry	Goshen	Goshen

STUDENTS REGISTERED AFTER CATALOGUE FOR 1937-38 WAS PUBLISHED

1939

Higginbotham, Harold Garland	Worcester

SPECIAL STUDENTS

Carroll, John Paul	Northampton
Finn, Katherine	Northampton
Houghton, Frances Dickinson	North Amherst
Schulda, Katherine M.	Northampton
Warne, Frances Corbett	Amherst

[1] Candidate for the degree of Bachelor of Vocational Agriculture.

Summary by Classes

Class	Men	Women	Total
1939	160	74	234
1940	174	65	239
1941	220	104	324
1942	237	114	351
Special Students	7	2	9
	798	359	1,157

Geographical Summary

Massachusetts	1,103	New Jersey	3
Maine	1	Pennsylvania	3
New Hampshire	1	District of Columbia	2
Vermont	7	Illinois	1
Rhode Island	2	Colorado	1
Connecticut	15	Minnesota	1
New York	16	Canada	1
			1,157

Summer School, 1938

Students for Degree Credit Only

Adams, Mrs. Ruth	Amherst
Allyn, Millicent J.	Holyoke
Alvord, Erma S.	Turners Falls
Atkins, Marjorie	Amherst
Avery, Arthur C.	Amherst
Baker, Mary L.	Cambridge
Bartlett, Lewis W.	Hinsdale
Beattie, John J.	Northampton
Bennett, Mrs. Clara W.	Springfield
Blake, Mrs. Margaret C.	Springfield
Buckley, Rita	Beverly
Bussel, Rose	Holyoke
Chapin, Ronald H.	Greenfield
Clancey, Margaret B.	Holyoke
Clifford, Margaret T.	Northampton
Clough, Portia E.	Hartford, Conn.
Coderre, Harry L., Jr.	Holyoke
Cook, Albert C.	Concord
Cook, Mrs. Alice M.	Greenfield
Cook, Florence M.	Amherst
Crean, Mrs. Yvette M.	Holyoke
Creswell, Robert M.	Worcester
Crowell, Stella	Greenfield
Crowley, Mary M.	Springfield
Curtis, Richard B.	Marlboro
Decker, Roger H.	Westfield
Derby, Llewellyn L.	Amherst
Duffin, Orley L.	Springfield
Dunn, Mrs. Luella C.	Ashburnham
Dunn, Robert F.	Pittsfield
Earls, Martin J.	Southbridge
Elliott, Richard D.	Winchester
Evans, Miriam	Cleveland, Ohio
Evans, Robert E.	Northampton
Everson, Margaret L.	Amherst
Fanning, Francis T.	Milton
Farr, Getta	Meshoppen, Penna.
Farrell, Kenneth T.	Brookline
Fenton, Isabel C.	West Springfield
Finn, Jean C.	Northampton
Fisher, Marian E.	Northampton
Fitzpatrick, William	Amesbury
Frandsen, Dana C.	Amherst
Galvin, Anne S.	Northampton
Gaskell, Betty	South Deerfield
Gifford, Norman L.	Westport
Glass, Robert B.	Arlington
Glazier, Melvin H.	Greenfield
Hanley, Robert	Hopedale
Hawley, Edna B.	Amherst
Hickey, Florence V.	Bridgeport, Conn.
Holmes, Joy	Moberly, Mo.
Holton, Charlotte	Springfield
Holz, Henry	Northampton
Hugelstein, Arthur	Stoughton
Hyde, Stella B.	Shelburne Falls
Janick, Frances	Easthampton
Jewell, Eleanor F.	Worcester
Johnson, Doris M.	Springfield
Jordan, Elsie	Ashaway, R. I.
Julian, Carol	Amherst
Keefe, Katherine G.	Hadley
Keiler, Emil E.	Andover
Klein, Aaron	Springfield
Knapp, Leila S.	Brattleboro, Vt.
Krumhansl, Ruth	Cleveland Heights, Ohio
Landers, Thomas B.	Belchertown
Larkin, Clarence J.	Haydenville
Larkin, Joseph P.	Watertown
Lash, Irene	Moberly, Mo.
Leary, Robert L.	Turners Falls
LeClair, Leo	Amherst
Lee, Alice	Deerfield
Lesniak, Jennie B.	Westfield
Levreault, Loretta A.	South Hadley Falls
Little, Virginia	Saugus
Lombard, William R.	West Springfield
Loomis, Mrs. Mary	Holyoke
Losey, Mrs. Myra C.	Metuchen, N. J.
Luce, Phillips E.	Framingham
Lyons, Mary E.	Holyoke
Maher, Mary A.	Westfield
Malcolm, James W.	Holyoke
Manning, Abigail C.	Deerfield
Manning, Mae G.	Westfield
Martin, Mabel	Metuchen, N. J.

Miller, James H.	Ashburnham
Miller, John C.	Dodge
Morey, Frank P.	Northampton
Moss, William H.	Mattapoisett
Munson, Janet T.	Amherst
Murphy, Eleanor M.	Greenfield
McCartney, Robert J.	Salem
McClelland, Mary B.	Amherst
McLaughlin, Charles L.	Amherst
MacPhail, William A.	North Plymouth
McQueston, Dorothy	Hadley
McQueston, Theodore C.	Hadley
Nichols, Barbara A.	Greenfield
O'Brien, Edward J.	Amherst
O'Connell, Daniel J.	South Hadley Falls
Oppenheim, Edward E.	Brockton
Padden, Henry M.	Holyoke
Parkinson, Leonard R.	Amherst
Parshley, Elsa M.	Northampton
Parsons, Ethel E.	Northampton
Patterson, Beulah E.	Orange
Patton, Willard G.	Amherst
Pearsall, Dorothy	Easton
Pease, Howard E.	Ashfield
Pierce, Dorothy	Holden
Porter, Wayland R.	Meriden, N. H.
Powers, Wallace F., Jr.	Amherst
Prouty, Fletcher, Jr.	Springfield
Quinn, Wilma	Holyoke
Raymond, Myrtle I.	Beverly
Reed, Philip C.	Hadley
Rice, Esther	Fitchburg
Rooney, Grattan H.	Ludlow
Rush, Lillian M.	Springfield
Ryan, Cecilia C.	Hatfield
Salisbury, Virginia	Lakewood, Ohio
Schreiner, Olive	East Cleveland, Ohio
Schweppe, Florence	Ludlow
Sheehan, Eleanor	Holyoke
Sheldon, Robert I.	West Springfield
Sperling, Leo	New York City
Steff, Howard N.	North Dartmouth
Stein, Lucille H.	Palmer
Stocks, Constance	Springfield
Sullivan, Joseph J.	Easton
Sullivan, Miriam	Springfield
Taylor, Marie C.	Lee
Taylor, Priscilla W.	Jamaica Plain
Tetreault, Herbert A.	Northampton
Toft, Grace	Perth Amboy, N. J.
Weinberger, Kate M.	New York City, N. Y.
West, Eleanor	Sheffield
Wetherell, H. Dexter	Westfield
Whitcomb, Marciene R.	South Hadley Falls
White, Ethel	Amherst
Whittington, Helen	Amherst
Wilekis, Walter A.	North Amherst
Wirtanen, Leonard	Quincy
Wood, Harold S.	Central Village

Summary of Short Course Enrollment

	Men	Women	Total
Stockbridge School of Agriculture			
Second year	108	3	111
First year	190	9	199
Winter School, 1938	112	2	114
Summer School, 1938	134	88	222
Specials	1		1
Totals	545	102	647

Grand Summary of Student Enrollment

	Men	Women	Total
Graduate School	253	67	320
Undergraduate School	791	357	1,148
Stockbridge School	298	12	310
Summer School	134	88	222
Winter School	112	2	114
Specials	8	2	10
Totals	1,596	528	2,124

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Beekeeping	82
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Drawing	67
Economics	90
Education	94
Engineering	47
English	102
Entomology	80
Floriculture	62
Forestry	64
French	104
Geology	85
German	106
History	98
Home Economics	59
Horticultural Manufactures	65
Horticulture	69
Landscape Architecture	67
Languages and Literature	101
Latin	107
Mathematics	86
Military Science	111
Mineralogy	85
Music	107
Olericulture	69
Philosophy	97
Physical Education	108
Physics	88
Physiology	73
Plant Breeding	72
Political Science and Public Administration	93
Pomology	70
Poultry Husbandry	58
Psychology	96
Recreational Planning	52, 85, 101, 104
Religion	100
Sociology	100
Spanish	105
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Zoology	82
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Gifts and Bequests

For the information of those who may wish to make a gift or a bequest to this college, the following suggestion is made as to a suitable form which may be used.

There are a number of worth-while activities of the College which are handicapped by lack of funds and for which small endowments would make possible a greater measure of service to our students and to the Commonwealth. The religious work on the Campus is an example. This is now carried on in a very limited way by current private contributions. Further information concerning this and other activities in similar need will be gladly furnished by the President.

Suggested Form

"I give and bequeath to the Trustees of Massachusetts State College, at Amherst, Massachusetts, the sum of ..... dollars."

(1) (Unrestricted)
"To be used for the benefit of Massachusetts State College in such manner as the Trustees thereof may direct."

or (2) (Permanent Fund: income unrestricted)
"to constitute an endowment fund to be known as the ..... Fund, such fund to be kept invested by the Trustees of Massachusetts State College and the annual income thereof used for the benefit of the College in such manner as the Trustees thereof may direct."

or (3) (Specific Purposes)
"to be used for the following purposes,"
(Here specify in detail the purposes.)

Bulletin

MASSACHUSETTS STATE COLLEGE

REPORT NUMBER

1937-1938

Bulletin

MASSACHUSETTS STATE COLLEGE

The report of the President and other officers of administration, for the year ending November 30, 1938, is a part of the seventy-sixth annual report of Massachusetts State College and as such is Part 1 of public document 31. (Section 8, Chapter 75, of the General Laws of Massachusetts).

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3500—2-'39. No. 6488.

THE TRUSTEES

Organization of 1938

Members of the Board

	Term Expires
David H. Buttrick of Arlington	1939
David J. Malcolm of Charlemont	1939
John F. Gannon of Pittsfield	1940
Davis R. Dewey of Cambridge	1940
Joseph W. Bartlett of Boston	1941
Philip F. Whitmore of Sunderland	1941
John Chandler of Sterling Junction	1942
Frederick D. Griggs of Springfield	1942
Nathaniel I. Bowditch of Framingham	1943
William C. Monahan of Framingham	1943
James T. Cassidy of Boston	1944
Mrs. Elizabeth L. McNamara of Cambridge	1944
Mrs. Katherine G. Canavan of Amherst	1945
Joseph B. Ely of Westfield	1945

Members Ex Officio

His Excellency Charles F. Hurley, *Governor of the Commonwealth*
Hugh P. Baker, *President of the College.*
James G. Reardon, *Commissioner of Education.*
William Casey, *Commissioner of Agriculture.*

Officers of the Board of Trustees

His Excellency Charles F. Hurley of Cambridge, *President.*
Nathaniel I. Bowditch of Framingham, *Vice-President.*
Robert D. Hawley of Amherst, *Secretary.*
Fred C. Kenney of Amherst, *Treasurer.*

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Massachusetts State College

REPORT OF PRESIDENT TO BOARD OF TRUSTEES FOR YEAR ENDING NOVEMBER 30, 1938

Accomplishments of the Year

In presenting this my sixth annual report to the Trustees of the College, I should like to outline briefly what seem to be the accomplishments of the past year. In the years to come, and as the growth in the usefulness of the College may be indicated chronologically, it seems quite certain that the outstanding accomplishment of 1937-38 will be indicated as the decision by the Board of Trustees to introduce changes that would make possible the awarding of the Bachelor of Arts degree to students satisfying the requirements for that degree. This decision of the Board is a definite step forward in the work of the College. It is a decision which had already been made by the governing boards of a large majority of the Land Grant colleges of the country.

The decision to make possible the earning of the Bachelor of Arts degree by students at the College has not involved numerous changes in curriculum nor any large addition to staff.

Some fear had been expressed by members of this Body and by a few Alumni that the decision to offer work leading to the Bachelor of Arts degree would result immediately in a large influx of students and a rather serious re-election of courses by students within the College. While the Administrative Group at the College had no way of determining what the actual results might be, yet the feeling was that the offering of Bachelor of Arts work would neither increase pressure for admittance to the College nor cause students within the College to change their elections to any extent.

The experience of the past fall has shown beyond question that the offering of the new degree has neither increased seriously the pressure for admittance nor caused students within the College to change their elections; in fact, the number of students electing work leading to the Arts degree is surprisingly small. It is possible, of course, that as it becomes more generally known through the State that the Bachelor of Arts degree may be secured at the College there will be pressure from students desiring this particular degree. However, under the conditions which your Body set up some seven years ago which has made possible the restriction of the numbers of students in the entering classes in the undergraduate division, there is no evidence that there will be any large increase in the student body of the College within the next few years.

In my first annual report to your Body, made at the annual meeting in January, 1934, I indicated as important objectives the strengthening of teaching and research in the College. These objectives have been kept continuously in mind and with your help and under your authority it has been possible to add to the teaching staff men and women of unusually fine backgrounds of training and experience. During the past year in particular there has been a further effort towards improving teaching at the College. You will recall that a number of very satisfactory studies of teaching principles, teaching load, etc., have been made and the results of these studies have been discussed in Faculty meetings and in meetings of Divisions and Departments. Further, constant emphasis has been placed upon the importance of each teacher doing a certain amount of research within his field of work.

The accomplishments in the direction of an improved physical plant have not been as great during the past year as during the years just previous when the College was fortunate in securing grants from the Federal Government and the State for the building of two important buildings, the reorganization of heating lines, the doubling of the size of the athletic fields, the addition of tennis courts, and certain other improvements. We were fortunate in securing during the year what may be a final allotment of funds from the Emergency Public Works Commission of the Commonwealth for the reorganization and

rebuilding of South College which has been used for a number of years as the Administration Building at the College. It is in place again to emphasize our appreciation to the Emergency Public Works Commission for their allotment of $63,000 for the rebuilding of South College. This building, which is one of the oldest of the buildings on the Campus and which for many years was used as a dormitory and a general office and classroom building, was poorly adapted for use as an Administration building. As there are several other buildings probably more needed on the Campus than an Administration building such, for instance, as a Women's Building, a Physics Building, a new auditorium, a central garage and repair shop, a riding hall for the winter use of the cavalry unit, it seemed wise to secure such funds as were available from the Emergency Public Works Commission to so change South College that it may be more efficiently used by the Administration of the College. With the changes which will be completed before the first of March, it is probable that South College will be used for many years as an Administration Building.

In September of 1937, the College had the misfortune to lose by fire what was known as the young stock barn. This building was an old building without fire walls and much too accessible to the great host of visitors who go over the Farm annually. With your help, we were fortunate in securing from the Legislature of last year a special appropriation of $25,000 for the rebuilding of the barn. This building project has been completed in such a way that there will be greater efficiency and greater safety in use.

The rapid repair of damages resulting from the hurricane of last September should be indicated as a real accomplishment. The Campus was directly in the path of the center of the storm and serious damage was done both by water and wind. Every building which has a slate roof was badly injured and in several cases trees fell on buildings. It is estimated that nearly a third of the trees on the Campus were either blown down or badly injured. Recognition should be given to the working forces of the Campus and the student body for the fine, loyal way in which they responded to the emergency. The men of the heating, repair and grounds services worked through days and nights to clear the Campus and to get buildings back into use. The students volunteered in large numbers and worked with surprising effectiveness in clearing away fallen trees.

Immediately following the storm, the entire administrative group was called together and careful estimate was made of the damage on the Campus and at Mount Toby Demonstration Forest. Emphasis was placed upon the fact that estimated financial need should be based entirely upon needed repair. As a result of our request submitted to Chairman Moynihan of the Commission on Administration and Finance at the State House an appropriation of $55,000 was received. Twenty-two thousand dollars of this amount was allocated for the salvaging of timber on the Mount Toby Demonstration Forest. This Forest lost about three million feet of timber, or about a half of its growing stock. The work on the Forest has gone forward in an unusually effective way under the careful supervision of Professor Robert P. Holdsworth, Head of the Department of Forestry, and Daniel McCleary, Foreman at the Forest. It is now estimated by Professor Holdsworth that the College will return to the State from the sale of logs somewhat more than the allocation of $22,000. It is possible that this will be the only storm damage activity in the State that will return to State Treasurer more than the amount allocated.

As the requests for funds for storm damage repair work were based upon current rates of pay for labor, it appears now, with the necessity for paying higher rates under this special emergency appropriation, that it will not be possible to repair all damage under the special appropriation of $55,000. For instance, it will not be possible to make any replacement of destroyed trees, either on the Campus or at Mount Toby. However, the main part of the job has been done and it is probable that gradually, and within the next two or three years, all repair work can be completed.

An Increasing Student Body

In discussing the question of the size of the student body at Massachusetts State, and it seems to be a question with which many people in the Commonwealth are concerned, it is in place perhaps to preface the discussion by a statement of the obligations of the College to the youth of the State.

Repeatedly in past annual reports, I have quoted from the Federal and State charters under which the College is operating and have referred to the statements made by Senator Morrill of Vermont, and others, who were responsible for the passage of the so-called Morrill Act. These charters are broad, both in wording and meaning and there is nothing in either of the charters which should cause the College to limit or confine its educational service to young men only, or to particular groups within the State. The College was established to serve the entire State. These charters indicate a broad program of teaching and research. Unlike many, if not most, of the great group of fine privately endowed institutions in New England, the Land Grant colleges from their very beginning have indicated service to the entire people of the State which they serve as being their prime objective. This idea of service to all of the people on the part of an institution of higher learning was a new idea when the Land Grant colleges came into existence and yet it is an idea that has met with widespread and increasing public approval and, therefore, has become an accepted fact.

When the Commonwealth of Massachusetts accepted the provisions of the Morrill Act in 1863 and thereby established the policy of public support for higher education in the Commonwealth, it gave its legislative and financial approval to the setting up of a college whose doors should be open to young men and women in every walk of life in the Commonwealth, providing these young people could satisfy what the College believed were right requirements for the beginning of a college experience.

As indicated in earlier reports, when my work began at the College in February, 1933, some of the first questions which were asked were as to the kind of a college being developed on the beautiful Campus at Amherst and as to whether the College was fulfilling the obligations of its charters. I was particularly concerned as to whether it was doing the most effective teaching and research and providing reasonably wholesome living conditions for its students. The College, in February, 1933, was a full-fledged co-educational institution and its program was carrying out reasonably effectively the objectives set forth in its charters. There was excellent teaching and research being done. The least satisfactory development was in the direction of satisfactory housing for the student body. In other words, the College six years ago was an excellently organized co-educational institution with an earnest, hard working staff and a fine body of students.

Some of the first comments received from Alumni of the College as my work began six years ago were that the College was making a mistake to accept women students in numbers. The answer to these comments was that the College is a co-educational institution and that so long as the Governing Boards desires that it shall be that kind of an institution, then it would be the interest and effort of the Administration to see that the women students are given as satisfactory opportunities in the accomplishment of their purposes in College as the men students. It was quite evident that the College, though accepting women in considerable numbers, was not giving them the same opportunities that it was giving the men; therefore, a continuous effort on the part of the Administration has been *not to increase the proportion of women students* but to see that they have the same satisfactory instructional opportunities as the men have and that they are provided with wholesome living facilities and that their opportunity for recreation and a satisfactory social life should be comparable to that provided for the men. Progress has been made in this direction and yet further progress must be made, not in the direction of changing the ratio of women to men, but in giving the women equal opportunity and equal right on the Campus of the College.

With the growing recognition on the part of the general public in the State of the fact that a well-balanced educational program is being carried out by the College under effective leadership and with standards comparable to those maintained by the group of fine privately endowed institutions of the region, the pressure upon the Administration to admit increasing numbers of students has become indeed a difficult problem. During the year previous to the beginning of my work at the College, the Administration, feeling that limits in staff and facilities were being reached, recommended to this Body that the entering class be restricted to approximately 300. The action of the Board was permissive and not mandatory, which was right from the standpoint of effective administration at the College. Repeatedly during the past six years I have emphasized to this Body and to committees of the Legislature that we are not interested in greatly increasing the student body at the College but rather that we were doing our utmost to carry out the policy established by the Board as to numbers to be admitted each year. This policy, by the way, applied to the undergraduate division only and not to the Stockbridge School or the Graduate School. Dean Machmer, in his annual report, is discussing this very difficult problem of an increasing pressure for admittance to the College by thoroughly well qualified students and is emphasizing the fact that what might be indicated as an injustice is being done to a large number of young men and women whose applications for admittance must be refused because the College has reached its capacity as far as effective work on the part of the instructional staff and the housing of students is concerned.

After six years of careful study of problems of admittance of students to the College, though I have not changed my idea as to numbers, yet I am becoming convinced that because the College was brought into existence to serve the entire population of the Commonwealth, the time is coming, if it is not at hand, when your Body either must put further restriction on numbers, limiting numbers in the Stockbridge School and Graduate School as well as the undergraduate division, or further provision has got to be made in the way of instructional staff and facilities for a steady increase from year to year. The responsibility for the decision as to whether the student body shall remain static in numbers or shall be slowly increased is largely the responsibility of the Administration and the Board of Trustees. However, it is becoming increasingly evident that the responsibility for decision must also be accepted by the Legislature of the Commonwealth. In a way, the Legislature has taken this responsibility by determining from year to year the amount of money to be used by the College for instruction, research and extension work. Perhaps the time has come for thoroughly informing the people of the State as to why we must turn away each year hundreds of fully qualified young men and women with the idea that in a democracy, final decision as to the form and the extent of service to be provided by government shall be determined by the people as a whole.

The Student Body

It is very much in place to follow the discussion of the numbers of students to be admitted to the College from year to year with a brief discussion of the present student body, particularly to emphasize to you, the Governing Board of the College, not only the somewhat changing origin of students but certain problems confronting the students themselves, as far as scholarship, health, financial needs and housing are concerned.

From year to year, and as the work of the College year gets underway, certain statistics as to the origin of students are developed, not merely for the sake of having statistics, but rather that the College shall know where students are coming from and of their educational and cultural background. It is increasingly important that we shall know the educational background of the students, to the end that we may bring about satisfactory adjustment on the part of the entering class and that we may understand their particular needs. It would appear that steadily through the past ten to fifteen years an increas-

ing number of students have been coming to the College from the eastern counties of the State and, particularly, from the metropolitan district of Boston.

For several years the College has been closing its doors a bit tighter each year against students from outside of the State so that the enrollment of Massachusetts students in the undergraduate division today constitutes 95.3% of the total enrollment.

Scholarship versus Mortality

Under the leadership of a group of teachers whose educational background and teaching experience are equal to any similar group of teachers in educational institutions about us, the College through the years has developed a fine standard of scholarship.

At times there may come criticism from public school men that our entrance requirements are unnecessarily high, yet by this same group of public school men we have been urged not to change our entrance requirements. This College is the only Land Grant college in New England which is a member of the New England College Entrance Board and which, therefore, maintains entrance requirements similar to the more important privately endowed institutions of the region. Membership on this College Entrance Board has made it somewhat easier for us to restrict numbers of students and has brought us a group of men and women who are well qualified for college work.

It is barely possible that the freshman year at the College has been a little difficult, not as a result of the standards maintained by teachers but rather because of too heavy a schedule. Under your authority and during the past three years, we have changed this situation for the better by reducing the number of hours required in each year and for graduation. Our requirements are now in line with institutions of standing throughout New England.

It is fitting that this brief discussion of scholarship should be tied into a brief discussion of the mortality of students in the College. There has been some suggestion made that the mortality here at the College is unduly high, in other words, that we lose too many students as they go along from year to year in a program which should lead to a degree. We have made rather careful studies of mortality in the College and at least one report on these studies has been submitted to this board. This report which was put into your hands during the past year indicates that mortality is much below the average of engineering or scientific technical schools within the general region.

As a result of these studies of mortality, we have been giving a great deal of thought to better procedure in bringing about the satisfactory adjustment of the freshmen to the college program and this year have made very satisfactory progress in that direction. Furthermore, the strengthening of the work of our Placement Service making it possible for them to do an increasing amount of personnel work and vocational guidance should help materially in gradually reducing the rate of mortality. Even with increasing numbers of students at the College, it is evident, I believe, that the College today is doing more work in the direction of helping the individual student to find himself and thereby to carry his work more satisfactorily than ever before in the history of the College. We have questioned as to how far we should go with this type of work and it cannot be expected that we shall be able to do quite as effective work along these lines as some of the large privately endowed colleges of the region and that because we simply cannot afford financially to do the work as it is being done elsewhere.

Maintaining Satisfactory Health Conditions for the Student Body

The past year has seen continued progress in improved health conditions for the student body. You are familiar with the struggles through which we went to provide additional infirmary facilities and the way in which a barn has been transformed into a very satisfactory ward building. Your decision last year to allow each student to have seven days of free service at the infirmary has been a very great help in maintaining the health of the student body. Under the careful direction of the College physician, Dr. Ernest Radcliffe, and his assistant, Dr. Margaret Thoroman, there has been no effort or

the part of the student body to take undue advantage of this free service. At the present time when a student is taken ill either in the dormitory or in fraternities or rooming houses, it is possible to send him to the infirmary for several days of observation and care and that without additional expense to the student. This arrangement has been particularly valuable in determining cases of contagious disease and of preventing minor throat difficulties or intestinal troubles from developing into more serious cases.

For years the infirmary was serviced by one nurse and one housekeeper. With the addition of the ward building, we began the effort to secure an additional nurse and finally last year this was made possible through provision for such a person in the State budget. It was, of course, simply out of the question for one nurse to take care of patients through a twenty-four hour period. The present facilities for hospitalization for the student body are a very great improvement over the situation of a few years ago. There is sufficient personnel for the present and yet there is much room for improvement, particularly in the way of physical facilities. By that I mean an additional hospital building.

Four years ago and in cooperation with the State Board of Health, we began X-raying the chest of every entering student. Without the help of the State Board of Health, it would not have been possible for us to have done this work and it is more than fitting that the assistance of the State Board should be recognized. The X-raying of the chests of entering students has shown from year to year either no active cases or at the most, one or two active cases. Whenever an active case is found, the parents are informed and requested to transfer the student to a sanitarium.

In the five-year building program which was submitted to the Director of the Budget this year upon his request, and with your approval, we have included a new hospital building. Even with the improvements which have been made during the last few years, we are not ready to indicate that the two small infirmary buildings and the new ward building developed from the horticultural barn, with a total capacity of thirty-seven beds, are adequate for a student body of 1600 students. Buildings for the State College in Massachusetts do not come easily and it is probable that we shall have to await such a building until the people of the Commonwealth shall decide through the Legislature that a larger number of students shall be accommodated at the College.

Providing Wholesome Living Conditions for an Increasing Number of Students

When I came to the College six years ago, I found a co-educational institution with fine standards of scholarship and a splendid group of men and women on the Faculty and in the student body. The total number of women students has not increased greatly during the past six years. Of 350 women students on the Campus, 118 only are accommodated in Campus dormitories. Off-campus sorority houses accommodate some 58 more which leaves 174 to be accommodated in private homes. This is not a satisfactory situation from the standpoints of wholesome living conditions for our student body. The situation is particularly difficult as far as the women students are concerned because wherever our girls may be living, the College has very definite responsibilities for living conditions and for proper supervision.

The two older dormitories—North College, a men's dormitory, and Abigail Adams Hall for women—have served a fine purpose on the Campus. Very careful estimate indicates that the State has received back into the State Treasury from rentals paid by students considerably more than the original cost of the two buildings and their maintenance through the years. We considered ourselves very fortunate to have secured in 1934 a men's dormitory through the PWA, housing as it does some 145 men. The addition of this new dormitory, known as Thatcher Hall, makes it possible to house most of the freshman men on the Campus. In an attempt to house all of the freshman women, there are some eleven women housed on the second floor of Draper Hall, which is

the dining hall building. This is not a satisfactory place for women students and it is hoped that changes may come soon which will make it unnecessary to house women in this building.

There can be no question of the need for additional dormitories for students at the College, particularly when one considers that the present dormitories accommodate but 18% of the men students and 33% of the women students and, further, that the College is located in a small town with very limited facilities for housing students who cannot be accommodated upon the Campus.

Dining room facilities are very definitely a part of the housing problem. The Dining Hall, which is housed in Draper Hall, is now operated under State appropriations and it is providing food of a very satisfactory character. It is our aim to house the freshmen on the Campus and to make it possible for them to eat in the Dining Hall. The Dining Hall is much too small to take care of even the needs of the students who live on the Campus and it is hoped that with dormitories built, perhaps as self-liquidating projects, there may be dining rooms provided that will take care of the dining room needs of the student body. Many students are now living and eating under conditions which are far from satisfactory and every effort should be made with the passing of the years to improve these conditions.

The Alumni Bodies of the College and the Stockbridge School

With the slow but steady increase in student body of both the undergraduate division of the College and the Stockbridge School of Agriculture, there has been a very normal increase in the number of Alumni going out annually from the College. It is a little difficult to determine exactly how many Alumni and old students of the College are making their homes in the Commonwealth, but probably a larger percentage of our Alumni remain in the State than would be the case with the larger state colleges and state universities of the Middle West. Probably a larger percentage of the Alumni of the Stockbridge School, and there are now more than 2000 Alumni and old students of this School, remain within the Commonwealth than in the case of the undergraduate division. However, a conservative estimate of the Alumni and old students of the College as a whole who are continuing to make their homes in the State is 5000. This is an important group and a group which is giving back to the State a fine type of service which can well be indicated as a return to the State on its investment in their education.

There has been a growing interest among the Alumni in returning to the College, not only for the Commencement period, but for what might be called clinics or schools of instruction in the fields in which they majored during their college days. We are very happy over this development and are confident that as groups return to the College they will not only renew their acquaintanceship with the College and its work, but will, through additional study and discussion in seminars, keep themselves abreast of changes in their fields of work.

There are two suggestions, as far as the Alumni are concerned, that I should like to present for consideration of your Body. The first of these is the proposal that the Trustees shall, within the next three years, favor the introduction by the Alumni Association of the College of a bill in the Great and General Court amending the organic act of the College in such a way as to assure a definite alumni representation on the Board of Trustees. The experience of the past few years shows that there is no assurance that the Alumni body of the College will be continuously represented on the Board of Trustees.

The second suggestion is in the form of a recommendation to your Body that you authorize the Administration to present a plan for future action of your Body whereby one or more Alumni may be given each year what might be called an Alumni Meritorious Service Award. The College has a great number of Alumni who have made outstanding contributions in the fields of science, industry and public service. It would be an inspiring thing for the Faculty and student body of the College if they could be made conscious from year to year of these outstanding accomplishments by graduates of the College.

These Alumni Meritorious Service Awards could be made at Commencement or at a special convocation just previous to the holiday season.

Buildings and Land Needed for Satisfactory Progress at the College

In each of my previous annual reports, I have outlined the needs of the College for additional buildings and land. A further statement as to these needs may seem almost like repetition, and yet I feel that I would be remiss if I did not emphasize to this Board what the Administration at the College feels to be essential in providing satisfactory facilities for effective teaching and research and proper housing for our student body. The needs as described and emphasized below cover our present student group of approximately 1600 only.

Four years ago, I presented to your Board what seemed to be an opportunity to secure the so-called Dickinson Farm of 59 acres which lies immediately adjacent to the Campus on the north. I emphasized the fact that this is the last large piece of land of a satisfactory character available for purchase. You authorized the inclusion of a special item in our askings for the purchase of the land. The first year this item was refused in the budget and three years ago the item was again included and was passed favorably by the Budget Director but was finally eliminated in the Legislature. With your authority, the item has been continued in our annual askings and I am confident that we should continue efforts to secure this property. The item in this year's budget calls for $16,000. The property was sold by Mr. Dickinson to Mr. Enos Montague, a graduate of the College, who is operating the property as a dairy farm. Should the property be broken up into building lots, as it may be, it means that it will no longer be available for College use.

Another small piece of land that is of very great importance to the College is the so-called Powers property which consists of approximately one-half acre of land and a small house. This land is entirely surrounded by College land; in fact, it may be said to be almost in the center of the Campus. The owners are elderly people who would be glad to sell the property to the College. It is particularly important that this piece shall be secured. Should it be bought by an outsider and used for a boarding house or some other similar purpose, it would probably be necessary for the College to secure the property through condemnation proceedings, if that is possible.

The third piece of land which the College should have is a small tract of six acres lying immediately adjacent to the so-called Clark Estate which is the extension of the ridge on the eastern side of the Campus upon which is located the President's House and Fisher Laboratory. This land is owned by a Mr. Avery of Holyoke who has been very fine about holding the property with the thought that it may be purchased by the College when there have been numerous opportunities to sell the property for building purposes.

While it may be inadvisable to be asking for funds for additional land in these times, these several pieces are of such importance to the College in its future activities that it is our strong feeling that every effort should be made to secure them.

Last year we were asked by the Director of the Budget to submit a five-year building program for the College. Our needs were very carefully studied and a program was submitted to your body for consideration and action. After full consideration, your body authorized the President to submit this program. This building program is headed by a Women's Building, a Physics Laboratory and Classroom Building, a Central Service Building and Garage for the Maintenance Department. These are the three buildings which are indicated as needed by the College in 1939.

For three years the Women's Building has headed the list of special items in the budget for the College and unless and until we get this Building to house the Home Economics work and other phases of work for women on the Campus, we shall not be doing as much for our women students as we are doing for the men. The work for women is now scattered among a number of buildings and there is no building which can be considered satisfactory as a center for

the social life of the women students. The Women's Advisory Council to th College, the Chairman of which is Mrs. Lottie A. Leach of Walpole, a forme Trustee of the College, the State Federation of Women's Clubs, the Stat Grange, and other organizations have interested themselves in this Buildin and are working aggressively for it. It has been approximately 16 years sinc the College has built a major building solely with a State appropriation. I making this statement there is no thought of minimizing the splendid suppor of the State in the building of Goodell Library and Thatcher Dormitory unde grants from the PWA.

The Physics Department of the Division of Physical & Biological Science is doing an excellent piece of instructional work and under very adverse con ditions. The Department is housed in a wooden structure which was the firs building to be built on the Campus for the College. This building was con structed as a botanical museum and President's office in 1867. The Depart ment of Physics has occupied the building for many years. It is now crowde from the basement to the attic and is not only very unsatisfactory as a labo ratory and classroom building but very much of a fire trap. Again this build ing has been asked for for several years in the budget and could we have th building it would greatly improve the character of the work in this funda mental science and would provide additional classroom space which would re lease the pressure on limited classroom space in other buildings.

Through the past 10 years as the College has motorized its activities on th Farm and on the Campus, we have gradually acquired a number of trucks tractors and automobiles. These are housed, generally, in barns and shed as there is no general garage on the Campus. It would make for economy i the College could secure an appropriation for a central garage and repai building. The centralizing of control of the services on the Campus has already effected material savings in truck use and repair and yet much greater saving could be effected if there could be provided this central garage and repai building.

In the five-year building program certain buildings are indicated as needec in 1940, 1941, 1942 and 1943. One dormitory is called for in 1940 and anothe in 1941. You are familiar with the efforts made by the Alumni of the Colleg to secure legislation which would allow the construction of dormitories as self-liquidating projects. Under your authority, a bill has been introduced in th Legislature which, if passed, will provide funds to be expended under the direc tion of the Trustees for the construction of dormitories as self-liquidating proj ects. It would mean a great deal in the proper housing of the student body if a dormitory could be built for women and another for men during the nex two years. Experience in some 22 other states which have built dormitories as self-liquidating projects shows that these projects can be liquidated in ap proximately 15 years and thereafter for a long period of time the State con tinues to receive a continuing income. North College is an excellent illustratior of the returns to the State from a college dormitory. This dormitory was built in 1868, and its final cost was approximately $66,000. A careful estimate indicates that since this building was constructed and occupied, approximately $210,000 has been returned to the Commonwealth from room rentals and there is every indication that the building will continue to be used as a dormitory for many years with a continuing financial return to the State. The one women's dormitory on the Campus, Abigail Adams Hall, has been liquidated and barring fire should be used for many years as a dormitory with some what the same return to the State as in the case of North College. In other words, with expected use through the years, the State should receive several times the original cost of Abigail Adams Hall.

A building greatly needed on the Campus is an auditorium and classroom building. This is asked for in the five-year building program for the year 1941. The largest auditorium on the Campus, known as Bowker Auditorium seats a few over 900. With 1,148 students registered in the undergraduate division this year, it is necessary to excuse one full class from convocation periods. When Stockbridge Hall was constructed and the auditorium added

there was some criticism because it was felt that the auditorium was very much larger than necessary. Only a few years passed before the auditorium was too small to seat the students of the undergraduate division. With increasing numbers of people coming from all parts of the Commonwealth to the Campus for meetings and conferences of all kinds, there is increasing need for an auditorium that will not only make possible the seating of our student body but will make possible the continuation of the service which the College is rendering the people of the Commonwealth, as these people use the Campus through the year for meetings and conferences. Last year, it is estimated that more than 60,000 people were on the Campus for meetings and conferences outside of our regular College group. We could have the Campus used even more extensively if there was an auditorium that would seat at least 2000 people.

Other building needs could well be presented and these needs are outlined in the five-year building program. Let me emphasize that in presenting the needs this year, I am not suggesting providing accommodations for any large increase in student body.

Changes in Staff

Six members of the professional and technical staff left the service of the College during the year—three by retirement and three by resignation. Those who retired under the provisions of the State retirement system were Professor John C. Graham, Head of the Department of Poultry Husbandry; Harry L. Allen, Laboratory Assistant in the Control Services; and Katherine L. Powell, Library Assistant. Mr. Allen had served the College well for 28 years, and Miss Powell, as Librarian of the Stockbridge Hall branch library, had rendered good service for 16 years. Professor Graham was brought to the College in 1911 by the late President Butterfield to organize a Department of Poultry Husbandry. His long and efficient service as teacher and administrator has been recognized by your Board by inscription in the official records of the Board and by his election as Emeritus Professor of Poultry Husbandry.

The three resignations were those of George Graves, Assistant Research Professor of Nursery Culture at the Waltham Field Station; Dr. Russell C. Larcom, Instructor in Economics; and Nelson P. Stevens, Instructor in Chemistry. All left to accept positions elsewhere after a comparatively short period of service at this College.

The Sixty-Eighth Commencement

The exercises of Commencement were held in the Rhododendron Garden and attended by nearly 3000 persons. The principal address was delivered by Dr. James L. McConaughy, President of Wesleyan University. The Honorable James G. Reardon, Commissioner of Education, presented the baccalaureate diplomas. There were 241 recipients of the degree of Bachelor of Science and one candidate for the degree of Bachelor of Vocational Agriculture. The degree of Bachelor of Landscape Architecture was conferred upon three candidates, the degree of Master of Science upon 62 candidates and the degree of Doctor of Philosophy upon three candidates.

Diamond Jubilee Observance

Massachusetts State College celebrated 75 years of service to the Commonwealth and the Nation with a special celebration of its Diamond Jubilee Anniversary on April 27, 1938. Dr. Daniel L. Marsh, President of Boston University, delivered a comprehensive address on "Higher Education in Massachusetts—75 Years Ago and Today." The College Charter was read by Professor Frank P. Rand from a photostat of the original. Faculty, students and many Alumni and friends of the College attended the exercises.

The observance of the Diamond Jubilee Anniversary was continued in lesser form throughout the year. Highlights of the year's program included the appropriate marking of the sites of original buildings of the old Campus, a

series of exhibits in the College Library showing progress in various Departments of the College during the years, and suitable observances by student organizations and Faculty groups.

Campus Events of the Year

In addition to the various programs in celebration of the 75th Anniversary of the College, there have been, as usual, many meetings and conferences upon the Campus attracting thousands of visitors and rendering, we believe, a distinct educational service somewhat apart from the regular activities of resident instruction, Extension Service and research. Some of these meetings which have become regular annual events are Farm and Home Week, the 4-H Camps, the Recreation Conference, the Poultry Breeders' School, and High School Day. The Horticultural Show was omitted this year because of the emergency caused by the hurricane. Meetings and demonstrations are also held at the Field Stations at Waltham and Wareham.

In addition to the many meetings at the College planned and supervised by College authorities, there is increasing use of Campus facilities by outside organizations for educational conferences. All of these meetings are listed separately elsewhere in this report.

Student Convocation

Student convocations, to which an hour is devoted each week, continue to serve a very useful purpose in bringing to as many of our students as can be accommodated in Bowker Auditorium worthwhile messages concerning current events and educational, social and scientific problems. It is interesting to note that six of the speakers during the past year were college presidents, three of them presidents of State Teachers Colleges and of the Massachusetts School of Art. The State Commissioner of Education, the President of the Associate Alumni, and prominent men in business and education were included in the program.

It is unfortunate that our auditorium lacks capacity to provide for all of our students for not only is this program of value to the individual, but it is an important agency in the development of college spirit and cordial relationships between students and Faculty. We are anticipating the day when we shall have ample auditorium capacity for the accommodation of our entire student body.

Determining Goals for the College

It has seemed in place in years past to discuss in my annual report to your Board the objectives which we should keep before us as an educational institution and to indicate goals in certain of our activities. I have been particularly hopeful that our objectives might become thoroughly well known, not only on the Campus but through the State generally. Even though certain changes have been made in the program of instruction at the College, such as the addition of work leading to the A.B. degree, and though there has been some broadening of the bases of the work of both the Experiment Station and the Extension Service, the objectives before us in the three fields of work which we have been carrying forward for many years have not been changed.

It is reasonable to assume; in fact, it is more than an assumption, that our principal objective, so far as Resident Instruction is concerned, is to provide the kind of a college experience for our students that should make it possible for them to go out from the College after four years, not only with a sound preparation for life, that is, for the making of a living, but with the right preparation for more effective living. Perhaps in times past the College has paid more attention to preparing its students for life; that is, that they might go out and immediately earn a living, than to sending these young people out not only prepared for useful participation in society but so aroused intellectually that through the years they will be living satisfactory lives. Through the past few years, we have been paying not less attention to the

first objective, but rather more attention to the second. Therefore, and with your approval, we have made special effort to develop a more satisfactory cultural atmosphere on the Campus. In other words, we have felt it not only desirable but necessary to surround our young people with more of music, the drama and the graphic arts.

The program of work for our students is a better balanced program today than ever before, assuming that there should be a balance between subject matter instruction and things cultural.

The objectives in the field of research have become clarified to some extent. While the service to the agricultural interests of the State through the activities of the Agricultural Experiment Station is more effective today than in times past, it has seemed wise to emphasize, not only within the Experiment Station but within the instructional staff, the great desirability of research work as a phase of the service which the individual researcher and teacher gives to the institution. It has been my hope that ways and means might be found not only to stimulate members of the teaching staff to explore within their particular fields but that there might be found means to make such exploring, such research, a possibility. The goal, it seems to me, so far as the professional staff of the College is concerned, should be productive scholarship, the type of scholarship that will be an inspiration and a help to the student body as well as to those who participate in the program.

In outlining the goals before the College in the field of instruction, it is in place to emphasize the fact that for more than 25 years the College has kept in mind the objective of an effective vocational educational program for young men and women who desire to return to the land. This year, the Stockbridge School of Agriculture has come of age, not only so far as years are concerned, but in the accomplishment of an unusual program of vocational work and a program which is being recognized throughout the country as being rather exceptional in character. It is our desire to have the College cooperate not only with all other state agencies in furthering vocational education, but assume leadership, particularly in the preparation of young men and women for active participation in vocational education in the secondary schools, in the Civilian Conservation Camps, and in other phases of the Federal program which look to the training of young people who are unemployed and who must be fitted satisfactorily into our social structure.

Earlier in this report reference has been made to the broadening of the base of the Extension Work of the College. Through the past two years this broadening of the work of the Service has consisted largely in the carrying out of Federal programs for the benefit of the rural population of the State. There has been danger that the participation of the Extension Service in these Federal programs might interfere with the Extension program as it has been carried on successfully through the years. It would seem reasonable to assume that the goal before the Extension Service is an educational program that will reach the entire rural population of the State, that will make living on the land or living in rural communities more worthwhile for these people.

In emphasizing briefly the goals before the College it is in place to call attention to the fact that the College is still the Land Grant college of the Commonwealth and that as a Land Grant college its services in the field of agriculture have not and will not be diminished. However, if the College is to meet the objectives outlined in its charters, and that is to provide education on the college level for the industrfial classes of the State, it is evident that there must be gradual extension of the wide range of services which the College is now rendering the Commonwealth.

In closing this annual report, and in completing my sixth year at the College, I should like to express my deep feeling of appreciation for the fine spirit of cooperation and loyalty which has been shown me by all of the various groups making up the College. With increasing complexity of social and economic problems surrounding us, it becomes ever more difficult for a college president to meet satisfactorily, not so much the expectations, but the requirements of those whom he is supposed to serve. The satisfactory and the harmonious

operation of a college can be accomplished only through the loyal cooperation of Trustees, Faculty, student body and Alumni.

It is not out of place for me to emphasize the fact that the Massachusetts State College is "a going institution," that it is gradually becoming a better College, and that because there is sincerity of purpose and a cordial cooperative spirit throughout the College organization. Through troublesome times, it has been my good fortune to have working with me in the Administration of the College and in its entire professional staff a splendid group of loyal men and women. Such progress as has been made at the College during the past six years is due to the efforts, not of one man or one group, but to the efforts of your Body, the Faculty, the students, the Alumni, and I should not leave out the many friends of Massachusetts State College throughout the Commonwealth.

Hugh P. Baker,
President.

BUDGET ESTIMATES FOR 1939

The budget of the College for 1939 as approved by the Board of Trustees is indicated below.

General Maintenance

	State Funds		Federal Funds		Total
	Personal Service	*Maintenance*	*Personal Service*	*Maintenance*	
Resident Instruction					
Instruction	$297,695		$116,688		$414,383
Short Courses	58,265	$11,350	3,165		72,780
Department Maintenance	52,681				52,681
Farm	34,500				34,500
Travel		6,025			6,025
Supplies and Equipment		104,230			104,230
Administration					
Administration	62,340				62,340
Trustee Travel		1,200			1,200
Printing		1,300			1,300
Plant Operation and Maintenance					
Operating Maintenance	128,574				128,574
Heat and Light		62,000			62,000
Repairs		20,000			20,000
Replacements		20,000			20,000
Extension Service	84,251	32,500	80,719	10,400	207,870
Experiment Station					
Main Station	122,887	22,800	101,300	4,609	251,596
Waltham Field Station	7,000	10,500			17,500
Control Services					
Fertilizer Law	13,550	3,300			16,850
Poultry Disease Control	26,000	8,000			34,000
Dairy Glassware Law	685	600			1,285
Seed Law	6,325	1,400			7,725
Dairy Cattle Cert.	6,100	2,300			8,400
Feedstuffs Law	11,765	2,200			13,965
Dining Hall	31,000	59,000			90,000
Totals	$943,618	$368,705	$301,872	$15,009	$1,629,204

Special Appropriations, 1939

The Trustee budget for special appropriations for 1939 includes twenty-one items totaling $603,640. The first five items are for the construction of buildings, the next three for important land purchase, the next eight for repairs and improvements to plant, three for improvement of services and two for special and emergency needs.

I. NEW BUILDINGS

1. *Women's Building* $250,000

The need for this building is very great. It has been included in the budget of the College for several years. The current enrollment of 371 women students is an increase of 99 per cent in the last seven years and adequate facilities for this increased number of women students are lacking. The work of the Division of Home Economics is carried on in seven separate buildings on the Campus in laboratories which were originally constructed for other purposes and these are much overcrowded. There is a very strong feeling on the part of students, their parents and those interested in woman's work at the College that this situation should be remedied.

2. *Physics and Classroom Building* $200,000

Present facilities for instruction in Physics at this College are very inadequate. The department is housed in an old wooden frame building which is much too small to accommodate the number of students taking courses in the department and which does not afford the opportunity for precision measurements and other

laboratory exercises which are very important in this field. At the time the present Bacteriology Laboratory was constructed in 1915, plans were prepared for a complete building of which the present structure is only half. The other half of the building would house very efficiently the Department of Physics and would provide in addition, much needed classroom space. It is the proposal herein to complete the Bacteriological Building for this purpose.

3. *Central Garage and Service Building* $50,000

A central garage for the fifteen automobiles, trucks and tractors owned by the College would be an economy from the point of view of maintenance and operation; also, there is need for paint shop and repair shop in connection with our general maintenance work which could be provided by the building herein proposed.

4. *Incinerator and Building* $5,000

There is urgent need for this type of equipment since all of the Institutional rubbish now has to be dumped in one section of the College Farm. This location has not only become saturated, but this method of disposal is unsanitary and expensive. Power Plant boilers have been used to some extent for disposal of rubbish but this has caused difficulties and the practice has been stopped by Executive Order. There is urgent need for such facility as this project would provide.

5. *Experiment Station Greenhouse* $10,000

The two Experiment Station glass houses are much in need of repair. Mr. Jewett and others are of the opinion that the cost of putting them in workable condition is prohibitive. Moreover, these houses are obsolete as far as construction and adaptability to the type of work now being conducted in them is concerned. Therefore, it is proposed that these houses be taken down and a new unit constructed near the present Agronomy greenhouse in the rear of Stockbridge Hall. To accommodate the various lines of research work now being carried on would require a 100 foot greenhouse.

II. LAND PURCHASE

6. *Avery Tract* $5,000

This tract of land composed of six acres adjoins the College property on the south and should be owned by the College, particularly since it is close to the site where it is planned eventually to locate buildings for women students.

7. *Powers Property* $3,000

This property consists of approximately one-half acre with buildings and is situated almost in the midst of the Campus being surrounded by College property on three sides. It is very close to present College buildings and should be owned by the Institution, for if continuously held in private hands, it might well be exceedingly detrimental to the best interests of the College.

8. *Dickinson Property* $16,000

This property consists of sixty acres and buildings adjoining College land on the north. The land is much needed for field and orchard work of our Experiment Station and should be owned by

the College to protect its present holding. The buildings are very substantial and the property as a whole could be used to excellent advantage by the College.

II. REPAIRS AND IMPROVEMENTS TO PLANT

9. *Improvements at Power Plant*

a. Overhaul of 500 kilo watt turbo generator $5,000

This machine was inspected by a representative of the General Electric Company in June 1938 and his report shows the need for replacement of many worn parts and the addition of a filter to prevent dirt from accumulating in rotor and stator of the generator.

b. Deareating metering heater for Boiler Feed Water $6,340

The present heater is of the closed type and cannot liberate the oxygen released from water. Oxygen in feed water is one of the factors responsible for corrosion in the boiler mud drums and turbine. Our 500 kilo watt turbine after three years of operation shows much corrosion on all nozzles.

c. Replace Boiler Super Heaters $1,900

These super heaters have been in service since 1923. No repairs or replacements have been made. Inspection shows that the cylindrical cords of tubing in them are burned out. The present operating efficiency is about 80%.

10. *Rebuild Short Course Laboratory at Marshall Hall* $2,500

Increased enrollment of students in the Stockbridge School has over-taxed the capacity of the Bacteriology Laboratory and it is proposed herein to make certain changes in the arrangement of the room and equipment with the construction of new laboratory tables. This will increase the student capacity of the laboratory from ten to eighteen and will enable the department to manage its teaching requirements.

11. *New Roof for Engineering Building* $1,800

This roof is in very poor condition and a complete new roof will be essential before the close of 1939.

12. *Improvement of Lighting and Rewiring Certain Buildings on Campus* $6,000

The lighting at many Campus buildings is very poor for classroom and laboratory purposes and at several the present wiring is of inadequate capacity for the current requirements.

13. *Replace Old Hand Operated Elevator at Fisher Laboratory with 1500 pound electric* $3,000

The present elevator is in an unsafe condition and does not comply with Massachusetts State regulations governing a power elevator. There is need for this equipment in the fruit storage and laboratory building to move the heavy boxes and barrels between the different floor levels.

14. *Repointing and Repair of Exterior Walls of South College Administration Building* $3,600

The exterior walls of this building are greatly in need of repointing over the entire surface. Three of the dormers on the south side have been so weakened by the recent hurricane that they constitute a dangerous hazard. In several places bricks can be lifted out by hand and some bricks have fallen out. The

whole condition of the exterior walls is such that water is likely to get through and do interior damage.

This work was originally included in the specifications for reconstruction of the building now being carried on as P.W.A. project but funds provided were not sufficient to cover it. The condition of the building has been made much worse by the storm.

15. *Renew Floor Covering at Dining Hall* $4,000

The present linoleum floor covering at the main Dining Hall is badly in need of replacement. It is a ⅛" cover which has been down under severe use for ten years and is completely worn through in places. It is proposed to remove this old cover and put down a 12" x 12" x ¼" rubber tile flooring on felt with 10" rubber base in two members.

16. *Universal 200,000 pound testing machine for Engineering* $4,000

This is an important piece of equipment much needed for the Engineering laboratory. It can be used for testing the strength of all forms of structural material.

IV. IMPROVEMENT OF SERVICES

17. *Field and Laboratory Work for the Suppression of Dutch Elm and Other Shade Tree Diseases.* $5,000

This request is to continue the project which has been carried on under special appropriation for several years particularly with reference to the Dutch Elm Disease and its insect or other carriers.

18. *Research and Advisory Service to Poultry Industry in the Fields of Vitamin Values in Feedstuffs and in Poultry Diseases.* $6,000

This renews request made for several years for expansion of service under the Feedstuffs Control Law. When feed control legislation was enacted some 40 years ago, requirements were based on knowledge of that day. Since then, marked progress has been made by science in pointing out other factors which influence the value of feed which are not now measured by laboratory test. It is the purpose of this project to make possible the checking of claims of vitamin potency and other factors made by feed manufacturers for products which they make and sell and, also, to give an advisory service on poultry diseases which in many cases are tied directly into the feeding of poultry.

19. *Research Service in Turf Management* $7,500

This item is placed in the budget to meet continuing and increasing demands from the greenkeepers of the State, park and cemetery authorities and organizations, for an adequate research program in turf improvement. The investment through the State in golf courses, parks, cemeteries, parkways, etc., is so great that this is very positive need for research work to be carried on at the College and the Waltham Field Station to assist greenkeepers and others in maintaining their turf in satisfactory condition.

V. SPECIAL FUNDS

20. *Productive Enterprise Fund* $3,000

This fund has been provided for many years and was originally established as an offset to the lack of a revolving fund for the pro-

ductive enterprises of the College. This fund is used when specifically authorized by the Governor and Council to meet emergency situations in productive departments and control services and to finance changes in the operation of these departments when it can be shown that such changes will increase the income to the State sufficiently to warrant the additional investment.

21. *Aid to Students* $5,000

For several years, the sum of $5,000 has been appropriated annually and has been used to aid worthy and needy students to pursue their College course. It has been used only to pay these students for labor in worthwhile work on the Campus. Demand for such assistance on the part of students always exceeds the facilities of the College for rendering such aid.

$603,640

REPORT OF THE DEAN

The most pressing problem which confronted this office this year was that of selecting the entering class under the limited enrollment plan now in effect. Neither our staff nor buildings warrant the admission of more than three hundred and fifty new students. Of this number approximately one hundred may be women. By careful selection and a rigid limiting of out-of-state applicants, most of the qualified men candidates could be admitted. But scores of well qualified women candidates had to be refused. The pressure for admission was so intense as to tax all our diplomatic proposals to the limit in an effort to prevent a serious outbreak of dissatisfaction. This pressure is upon us in spite of the fact that no effort has been made either through solicitation or advertising to increase the number of applicants.

As a State College it is difficult to defend such an arbitrary limitation. Unless facilities are provided for a gradual increase from year to year, we are going to be faced with a forced expansion of large proportions within a very short time. I cannot urge too strongly the necessity of securing increased appropriations for buildings and faculty additions so that the young men and women who can meet our entrance requirements and seek admission may be accommodated.

Student Guidance

This year considerable progress was made in the important field of student guidance. An instructor was assigned as Student Adviser in Thatcher Hall. Since this is strictly a freshman dormitory housing one hundred and forty-six men this adviser has the opportunity of close contact with sixty per cent of the first year men. One of his first duties is to see that the students are happy and reasonably contented. He also assists them in improving their study habits and assessing their own ability. In addition, he counsels with them on academic preparation and social adjustment. Students are also encouraged to eliminate undesirable personality traits through advice concerning extra-curricular activities.

Through this adviser and twenty-four faculty advisers selected by the Dean we are taking a positive interest in the scholarship of freshmen to the end that the waste of college education, which consists in the missed advantages and unevoked possibilities of students, may be reduced to a minimum. This can not be done through paternalistic administration, but through the steady attendance of friendly advisers who recognize the individual problems and demands of the incoming struggling student. The object is not to help the student to pass courses, but rather to give the disheartened and distressed student the example of a steady hand through wise direction. Difficulties may be caused by a faulty technique in note-taking, reading, and the handling of quizzes and examinations and, in many instances, through ineffective study methods.

To aid those students who are experiencing difficulty in specific courses, special classes have been organized for them. This year four special classes were held in Mathematics, two in English and two in Chemistry. We are satisfied that the plan is meeting a definite need. The instructor assigned to this important work is Mr. Calvin Hannum, who by temperament and training is well fitted for the work. He has both the bachelor's and master's degrees from the College and has had valuable experience as an employe in the College Placement Office. The instructors who served as advisers this year were: Professors Andersen, Boutelle, Caldwell, Cary, Ellert, Fessenden, Kauffman, Lanphear, Machmer, Marston, Miller, Troy, Lindsey and Sanctuary; Messrs. Briggs, Hannum, Helming, Swenson and Charles Thayer; and Misses Blatchford, Briggs, Hamlin, Horrigan, and Skinner. The cooperative assistance given these advisers by the members of the freshman faculty was most helpful. Through numerous reports and two instructor's meetings the problems of individual students were presented and methods for their solution

suggested. Some help in vocational guidance was given through a weekly convocation of all first year men at which career objectives and requirements were presented by members of the staff.

The Curriculum

Three very significant changes affecting the curriculum were made during the year: (1) the authorization of the Bachelor of Arts degree, (2) the revision of the freshman curriculum and (3) the setting up of a department of General Engineering.

After many years of agitation on the part of alumni, faculty, students and interested citizens, the trustees voted last June to grant the A. B. degree to all students in the Division of Liberal Arts who, in addition to completing the standard requirements of the freshman and sophomore years, (1) specialize in the Departments of Languages and Literature or History, or (2) specialize in Sociology, Economics, Philosophy, Psychology or Education, and complete, in addition, a minimum of eighteen semester credits of work offered in the Departments of Languages and Literature, Philosophy, History, Psychology, Music and certain courses in Landscape Architecture. This new degree did not immediately necessitate the addition of a single new instructor. However, it was deemed necessary to add several courses in Latin and to expand our course offerings in Philosophy. Some additional courses in Art should also be offered.

The new degree has had little noticeable effect on major elections this year. The major elections for the last three years were as follows:

1936-37

Class	Agri.	Hort.	Home Ec.	Soc. Sci.	P. & B. Sci.	P. Ed.	Total
1937	19	18	22	67	97	1	224
1938	28	19	30	85	98	0	260
1939	17	13	29	73	138	3	273
1940	16	17	40	54	181	9	317
Total	80	67	121	279	514	13	1,074

1937-38

Class	Agri.	Hort.	Home Ec.	Soc. Sci.	P. & B. Sci.	P. Ed.	Total
1938	28	18	27	82	87	2	244
1939	17	23	31	75	99	1	245
1940	9	21	36	59	141	—	266
1941	25	23	50	71	180	4	353
Total	79	85	144	286	507	7	1,108

1939-39

Class	Agri.	Hort.	H. Ec.	Soc. Sci.	P. & B. Sci.	Rec. Plan.	Wild Life	Gen. Engin.	P. Ed.	Total
1939	18	22	27	71	92	3	—	0	1	234
1940	11	16	31	77	98	1	2	3	—	239
1941	25	25	40	84	147	—	—	1	2	324
1942	27	24	38	79	161	1	—	16	5	351
Total	81	87	136	311	498	5	2	20	8	1,148

These tables show an apparent drop from 514 to 498 in the Physical and Biological Sciences, but this is caused by the loss of 20 students to the new Department of General Engineering.

The modification of the freshman curriculum was in two directions: first, to make it possible for a student to elect a year course in either Biology or Chemistry, or in both, instead of requiring every student to take a one semester course in both Chemistry and Botany; second, to enable him to take at least one course in his major Division. The revision makes our freshman curriculum a little more flexible and at the same time reduces somewhat the heavy teaching load in these two laboratory courses. But the relief expected was not fully realized this year because all students majoring in the Physical and Biological Sciences were advised to elect both sciences and many students in other Divisions also elected them. However, the possibility for freer election is available.

The General Engineering curriculum is fulfilling a very definite need as is evidenced by the fact that sixteen freshmen elected it this year. The new

department is functioning under the direction of the Administration instead of a Division Head. It was organized by combining with the department of Agricultural Engineering the engineering courses formerly given by the department of Mathematics. Only a limited number of strictly new courses were added to the curriculum and no additional instructors were added the first year. However, to provide adequate instruction in this important field, several new courses and at least two additional instructors should be added within the next two years.

The new courses approved during the year were as follows: Landscape Gardening, "Summary Course"; Zoology, "Fisheries Management"; Horticultural Manufactures, "Examination of Food Products"; Engineering, "Applied Mechanics (Kinetics)" and "Shop Practice"; Political Science, six new courses; Economics, "Business and Commercial Associations"; History, "Europe (1870-1914)" and "Europe (1914-)"; Physical Education, "Winter Sports" and "Water Sports."

Formerly the course, Survey of English Literature, required of all sophomore students, was given as a lecture course. This year with the addition of a new instructor in the Department of Languages and Literature, it has been possible to divide this course into seven sections of approximately fifty students each.

Another new regulation which went into effect this year requires that a student electing any foreign language must carry it through the year to receive credit.

Dean's Scholarship Fund

As its class gift to the College the Class of 1938 voted to establish the Dean's Scholarship and Loan Fund. The administration of this fund is solely in the hands of the Dean. It may be used for loans, grants outright, or scholarships. The class gift forming the nucleus of this fund was $300. Since then the Fund has been almost trebled through two gifts, the first of $300 from Bernard Smith of the class of 1899 and the second from the "American Agriculturist" of $200. This Fund was much needed and has already been used by seven worthy students. It is our hope that additional contributions will ultimately bring this Fund to $5000.

Music

The concerted efforts of the Administration to develop a keener interest and a deeper appreciation in Music are beginning to bear fruit. The memorial chimes "ring in" and "ring out" each day. A volunteer choir of thirty voices has been organized on a competitive basis. Our men's and women's glee clubs are receiving the enthusiastic support of the entire student body and have a larger membership than ever before in the history of the College. The college orchestra is also large and has developed splendidly. Much of this enthusiasm and progress is due to the splendid work of Mr. Doric Alviani, the new instructor in Music added to the staff this year. Group singing has also improved.

The policy of bringing artists to the campus for special lectures and concerts has been continued. The college band too has kept up to the high standard of performance established through the last three years.

Needs

I would be remiss if I failed to call attention once again to our important building needs. With 357 girls enrolled, there is an imperative need for a Women's Building devoted to their specific use. In basic science and liberal arts courses facilities provided for men can also be used for women with almost equal effectiveness. But in Home Economics, Child Development and other fields almost exclusively elected by women, the facilities now available are not adequate. We have recognized this in physical education and the women students now have their own gymnasium and athletic field. Equality of opportunity and efficiency call for the immediate construction of the Women's

Building, proposed, described and requested in the President's report of last year.

Another building which would make our work with students more effective, and at the same time enable us to take care of the numerous convention groups which request permission to meet at the College, is a large Assembly Hall. This is the same building which has been requested in both the President's and the Dean's reports of the last two years. Although this point was brought out then, it seems increasingly regrettable that, because of inadequate auditorium facilities, it is impossible to have an assembly, a convocation, or indeed any meeting of the entire student body. The division of the student body into two groups for all meetings, which was made two years ago as an expedient, should not be permitted to become permanent.

The inadequacy of the present Physics Building can not be over-stressed. There are other building needs which should be met but the above should be provided regardless of any action which may be taken by the trustees on the question of restricted enrollment now in effect.

The prestige of any college and its educational effectiveness are dependent in no small degree on productive scholarship. With our present organization the resident staff has little time for creative work or reasearch in that field because teaching loads are too heavy and because research has been made an organization unit somewhat apart in the Experiment Station with its large staff devoted almost exclusively to research. There are difficulties in solving this problem, but a closer coordination should be effected between the research and teaching staffs and an attempt made to relieve the pressure on departments now required to take care of a large graduate school enrollment.

Faculty and Student Morale

Education and knowledge do not of themselves guarantee leadership or worthwhile accomplishment. The task our students face demands all the College has ever taught; all the knowledge, all the intelligence, all the wisdom, all the devotion, all the loyalty, all the courage, all the patience. It will demand in addition that quality in leadership and power among men called morale. Only the love of right, truth, and humanity and allegiance to the eternal and permanent verities can develop the quality of morale that wins. Morale is an attitude of mind which appeared to be present in both the faculty and the student body this year. It was manifest in the interest and devotion to duty of the former and enabled the latter to establish a performance record in scholarship and extra-curricular activities of exceptional quality. It was manifest also in the relatively few discipline problems and the more serious attitude of the student body as a whole.

We take pride in reporting the achievements of the year as satisfactory.

William L. Machmer,
Dean.

REPORT OF THE DIRECTOR OF THE GRADUATE SCHOOL

The work of a graduate school is of such a nature that it varies little from year to year. This makes it difficult to justify annual reports on the basis of new developments or activities. Definite changes, however, in the curriculum of the undergraduate college or the inauguration of new state or national services for which trained personnel is required should show evidences of recognition in the graduate school.

Now that the Bachelor of Arts degree may be awarded there needs to be provision for graduate work for students who have received that degree. Such graduate work should naturally lead to the Master of Arts degree and there is, at present, definite need for and a real interest in this development and favorable Trustee action should be forthcoming.

Recent federal legislation bearing more or less directly on some of the nation's social and economic problems is making a demand for trained personnel who

will need to qualify through education provided by graduate school courses. Massachusetts State College has been ready to respond to this demand by providing for composite majors which emphasize interest in a diversity of subject matter as contrasted to the high degree of specialization ordinarily stressed. The degree in Food Technology is an illustration. At present there is a plan afoot which, if successful, will promote the coordination of the work of several departments to provide for advanced study and possibly for a degree in certain phases of public health services. This venture is particularly encouraged by student interest and also by the favorable attitude of public health agencies.

All attempts to meet demands for enlarged service naturally require expansion in the graduate school. Up until recently, while there has been growth, this has been so gradual that the additional demand for service was absorbed by the regular resident teaching staff. During the last few years, however, the growth in the graduate school has assumed proportions that must be reckoned with if the quality of our offerings is to improve or even be maintained. The number of degrees awarded at commencement time in June, 1937 was 30 per cent above that of the previous year and in june, 1938 it advanced 33 per cent over the year before. As a result of this expansion some of the departments are confronted with an impossible situation which must be met either through restricting enrollment or by providing an adequate staff. This problem is especially prominent in the departments of Education, Chemistry, Bacteriology, and Horticultural Manufactures where the present resident teaching staff is too limited in number to provide the leadership necessary. Certainly the time is here when, if graduate study is to be encouraged, this division must be given recognition in the institutional financial budget. Adequate financial support for this primary purpose will also serve in providing for certain flexibility in the resident teaching program which should encourage the interest in research necessary if the college is to maintain its standing among educational institutions.

F. J. Sievers,
Director.

REPORT OF THE DIRECTOR OF SHORT COURSES

In September of 1920, one hundred freshmen, exclusive of Federal Board students (ex-service men) were enrolled in the Two-Year Course in Practical Agriculture, now the Stockbridge School of Agriculture. In October 1938, as we come of mature age and register the twenty-first class, we are faced with an enrollment of 200 freshmen. Add to this figure 111 seniors and we have a total of 311 students in this one division of the college or more than the whole college enrollment of thirty years ago. This growth clearly reflects the pressing need today for providing training facilities in vocational courses beyond the high school level. That this college has been able to initiate, develop, and expand such a pioneer program in the field of agricultural business and its related lines is but one measure of its constant effort to be a service institution to all the people of the state.

The purpose of our Stockbridge work has always been to provide sound basic instruction in the science and practice of agriculture so that our graduates could secure gainful employment. One of the most important features of this program is the placement or practice training, from April to October of the first year, taking the student away from the college into the actual work for which he is preparing himself. This system must depend, therefore, on the ability of the Placement Director to secure employment for all students who successfully complete the full resident instruction of the freshman year. That the Placement Office has been able to carry out such a tough assignment year in and year out, in seasons of drouth and flood, through depression and recession, in a state and area (New England) largely industrial rather than agricultural, with nearly a one hundred percent job location, is a notable attainment

for which they should have every credit. Without such aid, and the cooperation of hundreds of farm owners and operators who were willing to give these young apprentices a chance to prove their mettle—and pay them for their services as well—our program would have broken down completely.

Fortunately, during these past years, the numbers of students coming to us for this work have been within the limits of the college to provide class rooms, laboratory equipment and teachers without undue expense or over-expansion. Thus, too, our barns, shops, testing laboratories, greenhouses, farm equipment, orchards, gardens, herds and flocks have been put to a constantly increasing service and use by our short course students, definitely justifying the large scale operations and investments such practical training involves. Some seasons have found larger student enrollments in certain major programs than would seem justified by the average demand for graduates in those fields, but these peaks have usually levelled off quickly as business conditions improved or receded. Never before has it been considered necessary to fix a maximum limit for students in any one of the original seven major Stockbridge courses: Animal Husbandry (General Farming), Poultry Husbandry, Dairy Manufactures (Milk Plant Operation), Fruit Growing, Floriculture, Vegetable Gardening, and General Horticulture (Landscape Gardening).

Today we are faced with a new situation in the present incoming class of freshmen when a normal annual enrollment of twelve to eighteen students in the Dairy Manufactures major suddenly jumps to forty-four, more than twice the size of any previous group. Normal scholastic losses and the usual voluntary withdrawals to enter other occupations will not reduce the number more than four to eight men this year, it is anticipated.

Three problems definitely confront us here. One is the limit set by the laboratory capacity for ice cream, butter, cheese, and market milk work in the second year, of not more than fifteen to twenty men. This is due not only to restricted laboratory space and equipment, but to the greatly increased use of raw materials made necessary, cream and milk particularly, and to the added fact that sale or consumption of the manufactured products would not be possible through the usual college channels of distribution (College Store, Dairy Sales Office, and Dining Hall) nor can such excess commodities be released rightly in competition with private dairy concerns already adequately serving the local market regularly.

The second problem is this. The Placement Office has found from its twenty years' experience that in the Dairy Manufactures field not more than fifteen to twenty men at the utmost can be placed for apprentice training with dairy concerns, not only in Massachusetts primarily, but in our other New England states. Thus, it appears that not more than fifty per cent of the present freshman group of Dairy majors can look forward with certainty to placement employment and without such experience the requirements for the Stockbridge diploma cannot be met, for a successful work record has been a requisite part of the School program since its beginning.

Third, the experience of the Placement Office in locating jobs for Dairy Manufactures graduates is that the dairy industry itself cannot regularly absorb more than ten to fifteen men in permanent employment each year. One of the outstanding features of our Stockbridge work throughout its brief history has been the high percentage of employment effected for its graduates in all phases of our work. The marked success of so many of our graduates in this particular field is perhaps one reason for the sudden up-swing in student enrollment this year.

Summarizing what these three problems bring out we must answer these questions.

1. Shall we set a limit on all Stockbridge registrations at this time because this one major course is affected by an abnormal enrollment this year, and one which our experience seems to show may not repeat itself another year?
2. Have we any justifiable reason to expand our present dairy laboratory facilities far beyond the usual student requirements to meet this emergency

demand, in view of the very definite limitations on raw materials, storage capacity, and ultimate disposal of the products?

3. Should we allow so many students to continue in this Dairy major course, when placements cannot possibly be secured for more than half their number; and, if so, are we not eliminating the work experience of placement as a basic requirement, thus definitely changing the whole educational policy of the School on which its reputation has been so strongly established?

4. Can we honestly accept students, without limit or some selective agency, for enrollment in Dairy Manufactures, with an implied promise of possible placement and subsequent employment after graduation, when we know from the actual experience of the Placement Office that both placement training for undergraduates and employment opportunities for graduates are limited to what approximates a quota in that particular industry?

I think we can answer reasonably and honestly all of these questions with fairness to all concerned, by adopting the following procedure, which I wish to recommend for your consideration.

For the school year beginning in October 1939, we should set a maximum limit of twenty-five freshmen students in the Dairy Manufactures Course. If more than this number apply, the Director will appoint a faculty committee, largely from the department concerned, who will interview and rate all applicants, recommending only those who may seem best suited for the work. I am sure the Placement Director could assist greatly if he would consent to serve upon such a selective committee.

I believe there should not be any immediate wholesale restriction of enrollment in The Stockbridge School of Agriculture because of this one emergency situation developing. Most of the other major courses have comparatively smaller groups at present and, with few exceptions, both placement and employment opportunities have kept fairly well abreast of student numbers.

It does not seem justified to attempt to enlarge our dairy plant facilities beyond the point of proper balance. Such a procedure would set up a whole series of reactions. More students, then more laboratory space needed, more equipment, more teachers, building becomes too small; more milk and cream required, more cows needed, larger barns, more hay, feed, help, land. Just where would it all end? And there is a budget!

The balance I wish to emphasize as of the greatest importance is that between trained man-power and industry. Under no circumstances have we a right to encourage students and parents to make every possible financial sacrifice for vocational training in this field of work here, when all our experience in the Placement Office tends to show beyond question of a doubt that there are limits for both dairy placements and dairy jobs.

I believe we should not deliberately contribute to breaking this balance and that we must be governed in our policy by these limitations. In this respect we have already established a precedent in prescribing definite limits for our two new major courses, Wildlife Management and Foods and Food Processing: two fields of work very clearly limited at present in employment possibilities for our special training objectives.

For the present group of freshmen enrolled in this Dairy Manufactures course we must secure an immediate rating on each student by each instructor who has conducted class work with them. With these adaptability, personality, character, and scholastic estimates as guides, the twenty highest scoring students will be selected as the nucleus for possible placement this April. Such a plan should not place an impossible burden on the shoulders of the Placement Director, for it reduces the number of trainees to a figure which he estimates can be placed effectively. As a result of enforcing this immediate limitation we make possible a senior group next year no larger than present personnel and dairy plant facilities can train efficiently.

We avoid a much more grievous error by encouraging only such numbers of dairy course graduates as there seem to be chances for satisfactory employment, as indicated by the records of the Placement Office.

By making a decision at this time, before the end of the fall semester, those freshmen not eligible for continuance in the Dairy course will be able to choose another major program in which opportunities for placement and employment after graduation may be more easily secured. While some disappointments are bound to occur in such a situation, with the group affected by these emergency measures, I feel sure the reasons for taking this action are sound.

These changes should insure more thorough teaching for the Dairy group, more effective placement assignments, and a higher percentage of employment after graduation.

If other major courses in Stockbridge encounter similar problems, as now seems increasingly likely, we must limit and select their student groups, too, before they overtax our training machinery.

We must consistently control any rapid expansion in our vocational programs, if such growth threatens to weaken or destroy by sheer force of numbers, a sound program of placement service for every student.

Roland H. Verbeck,
Director.

REPORT OF THE LIBRARIAN

The Library now contains 113,293 volumes. The number of books catalogued during the year was 4,120; 17 books were discarded, leaving a net gain of 4,103 volumes as compared with last year. Of these books, 1,493 were gifts. The number of department libraries in other buildings is now 58; the contents of these are catalogued in each library, and in the Goodell Library, so that all book resources of the College are coordinated.

The periodicals currently received and kept on file at present number more than 650, besides many serial publications.

The Library has been kept open for study and loan of books 343 days and 17,623 books were loaned for outside use, as compared with 341 days, and 16,007 volumes last year. The months of largest borrowing were: April, 2,404; March, 2,174 and January, 2,147. The classes of books most frequently borrowed were:—

Literature 3,753
Social Sciences 1,939
Useful arts, or applied science 1,939
History, biography, travel 1,806
Current periodicals 1,429
Fine arts, including sport 1,391
Pure science 1,319

There have been no notable changes in the library during the past year. One new assistant, a graduate of the Syracuse University School of Library Science, has joined us, and is proving very helpful. Use of the library increases steadily, so that it is obvious that the time is not far distant when it will be in use to capacity.

The work of student assistants in book binding and repair is a notable and unusual feature of the work of the library, surpassing considerably the type of work done in this field in most libraries. This has eased the great difficulty in securing regular binding which has hindered our work during the past three years, and which we hope may be eased in the near future.

There is of course steady call for larger funds for the purchase of books, especially in fields leading to the new degree to be given at the college. With the present staff the cataloging of many additional books would have to be delayed, since we are not yet caught up on books which have waited for years to be added to the library. It is good to be able to report, however, that we are nearing the end of the housecleaning, or delayed work, which has hindered advances for the past fifteen years.

B. B. Wood,
Librarian.

REPORT OF THE DIRECTOR OF PLACEMENT SERVICE

The principal development of the past year's activities is a marked falling off in the number of actual placements made by the three members of the department. This fact carries right through a summary of all phases of placements made with the exception of summer placements of seniors, in which case 11 more placements were accomplished for the class of 1938 than for 1937, and the required six months' training period of Stockbridge freshmen showing 139 placed in 1938 as against 122 in 1937.

This drop in the number of placements as compared to the previous year is explained by the fact that business operations in general not only failed to continue to improve as predicted but showed a rather pronounced slump starting last fall. This reaction resulted in a much diminished demand for college graduates in all phases of industry. After reading reports and talking to placement officers of other institutions throughout New England, I am convinced that this falling off of actual placements is not peculiar to this college. All of them experienced the same difficulties. The following table shows the comparative placements for the two years.

	Women Students		*Men Students*							
			Bus. Ind., Etc.		Agri. & Hort.		S. S. A.		Totals	
	36-37	37-38	36-37	37-38	36-37	37-38	36-37	37-38	36-37	37-38
Graduate Placements—										
Permanent	18	5	4	2	23	13	60	42	105	62
Summer	14	7	0	0	—	—	—	—	14	7
Positions Available—										
Permanent	102	69	48	44	292	248	292	248	442	361
Summer	207	147	—	—	59	27	116	141	382	309
Graduates Enrolled	32	85	47	40	88	74	196	186	363	385
Senior Placements—										
Permanent	25	17	21	12	8	13	53	42	107	84
Summer	9	18	—	—	—	2	—	—	9	20
Undergraduate Placements—										
Summer	97	78	10	5	12	9	122	139	241	231

Including graduate, senior and temporary placements a total of 404 individuals secured employment directly through this department as compared to 476 in the previous year, a drop of 72 or 15 per cent.

If, however, we evaluate the year's activities as one phase of an educational program with stress laid upon benefits derived from personal interviews between placement officer and student or graduate, then in the estimation of the officers of the Placement Office, the year has been a successful one. Seniors particularly have been more eager than ever to discuss career opportunities and trends, employment prospects, job analysis, job finding and getting techniques.

Effectiveness in securing placement comes as a result; first, of self analysis with reasonably sound conclusions as to one's aptitudes and limitations; second, laying plans for finding and getting a job wherein the individual can most effectively contribute his best services to humanity; third, being versatile in order to be prepared to change from an unattainable to an obtainable goal; and last, putting the plans into effect.

The placement officer in this scheme serves as a disseminator of occupational information, a critic of professed occupational aptitude and interest, and sponsor of the individual, at least in the introductionary period of his job seeking campaign. To arrange an interview for a senior with a prospective employer and to introduce him most effectively either by letter or in person is the last step in our program.

That we have our successes in these matters is indicated by the following quotation from the Employment Director of one of our country's largest industrial corporations: "Messrs.* ——— and ——— called at the New York office yesterday and made a very fine impression. It is somewhat unusual to

*One of these young men is now with the above company.

see two seniors who appear to have such definite ideas on what they are fitted for and what they want to do. Both boys handled themselves exceptionally well and the interview was most enjoyable, at least from my viewpoint."

Report of Placement Work for Women — 1937-38

Each year the placement officer for women tries to find more ways of serving women students in finding employment and also in making available to them information which will be helpful in choosing a vocation and preparing themselves for it. This information is made available through many personal interviews and by collecting and calling the attention of students to literature pertinent to their field of interest. Then a course in vocational opportunities is given for college freshman women during the second semester and one in agricultural opportunities for women for the Stockbridge School women during the first semester. At the request of the Women's Student Government Association, three talks on vocational opportunities for June graduates were given to the senior women in March, as has been done in the two years previous.

Freshman women in the Stockbridge School of Agriculture were placed for their required six months' training and visits of supervision were made to each girl while she was working. Also, senior Stockbridge School women were given aid in finding permanent positions.

The work of aiding women students in finding positions for self-help work in college under the National Youth Administration and Student Employment Fund was handled through this office.

All senior women were interviewed early in the fall with a view to aiding them in their vocational plans, if any, after graduation. Much help was given these seniors in preparing to find positions and in finding positions for them. Especial attention was given to making personal data sheets for each senior woman, to be sent out from the Placement Office to possible employers. These personal data sheets were prepared in time to send early in the spring. They were of convenient size for filing and contained data which gave the employer a very good idea of the girl's assets for the type of position for which she was looking. They included whenever possible, statements from employers as to the abilities of girls who had worked for them in some position. These personal data sheets were reported both by girls and employers as being of real help and value for their purpose.

During the last year there were 210 calls for permanent and temporary positions. As always there are a good many calls which require much specialized training and more experience than many of our girls have, so there are a good many that cannot be filled because we do not have girls available who can meet requirements.

During 1938, 137 girls were placed, 25 in permanent positions and 112 in temporary positions.

Summary of Student Employment Program for 1937-38

Group	No. of Student Employed	Amount Earned	Average Amount Earned
Stockbridge . . .	46	$ 2,066.94	$ 44.93
College	463	41,675.26	90.01
Graduate . . .	26	4,000.58	153.87
	535	$47,742.20	$ 89.24

Of this total, $14,794.91, was contributed by the N. Y. A. and $5,000.00 by the State Special Emergency Fund.

The grand summary of student earnings for 1937-38 shows that 535 students of the College were employed, earning a total of $47,742.20. This averages $89.24 per student. Both men and women of the Graduate School, the Stockbridge School and the undergraduates of the College are included in these figures. The total amount earned by the 26 graduates employed was $4,000.58, an average of $157.87 per graduate student. The 509 undergraduates, including those of

the Stockbridge School of Agriculture, earned a total of $43,741.62, or an averag of $85.94 per student. Of this total sum $27,497.41 came from Departments funds, $14,794.91 from the N. Y. A. grant, and $5,449.88 from the Special Emer gency Fund.

Students applying for aid are rated by the Student Aid Committee accordin to need and the Placement Service assigns as many as possible to jobs accordin to their rating and qualifications to handle the job. The freshmen and sophc mores, unless especially qualified, handle the routine work while juniors an seniors are placed in more responsible positions connected with their majo departments. Every department of the College is contacted at the close of th school year to ascertain the number of students needed, together with any spe cial qualifications needed for the job. Then at the beginning of the Fall terr the job assignments are given out.

The Agricultural Division of the College employed about 40 students, most o whom had jobs directly related with their major subjects. About 15 were em ployed part time on the College Farm.

The great majority of the students of the College are majors in some branch of Physical and Biological Sciences, and consequently the departments of scienc employed a great many laboratory assistants and helpers. The Chemistry De partment employed about 10 students in the storerooms to supply equipmen for laboratory work. Others prepare chemicals and get the laboratory ready The more advanced students assisted in the laboratory or helped carry on re search problems of the department.

The Social Science Division employed mainly office workers and readers, bu in addition there were several unique jobs open to students. The Carnegie Musi Room at the Library was attended by competent students interested in music The Economics Department had several advanced students working in researcl in that field. The Psychology Department was very fortunate in having hac an experienced craftsman, to construct and maintain apparatus to be used ir psychology tests .

The Physical Education Division employed about 30 students. A few qualify as supervisors for the required Physical Education classwork in which they in- struct Freshmen and Sophomores in the fundamentals of various sports. Some advanced students assisted the regular coaches in their work. A graduate stu- dent, gained valuable experience acting as trainer for the Physical Education Department. The pool was also attended by students who were qualified in life saving and general swimming instruction. The Boy Scout Program also came under the division of Physical Education. Students who qualified as troop assistants and leaders were assigned to Boy Scout Troops in Amherst and vicin- ity. The Amherst Boys' Club also had four experienced leaders selected from qualified students. Under the heading of Recreation we might add those stu- dents who were employed in the Game Room in the Memorial Building. The job of setting up pins is one of the most strenuous on Campus. Last year about 10 students worked in the Bowling Alley.

The girls were placed mainly in the offices as statisticians, typists, clerks and readers. Some found special training valuable as for instance, one girl, who worked for the Extension Service in the capacity of an artist. Another girl worked as a troop leader for the local Girl Scouts. Quite a few of those majoring in Home Economics were employed in that department thus gaining practical experience. A number of girls were employed in the Library; some as librarians, some as printers, and some as book-binders, etc.

There are several other important employers of students at the College. The Experiment Station and the Extension Service both had large numbers of student employees. Last year the Experiment Station had three students, who worked as surveyors. The Extension Service had approximately 30 workers. Among the Extension Service employees was a student to prepare radio script for the educational broadcasts sponsored by the service. The Dining Hall and the Col- lege Store furnish jobs for about 45 students who have qualified for the work.

As the College has grown this Student Employment Program has become indispensable, both from the standpoint of the College as well as the student. All

Departments of the College have an interest in this program, and their willingness to cooperate makes it easier for the Placement Service to fulfill its obligation to the students and to the College. But the needs of our ever-growing student body are greater than our student employment program can meet. We need more financial assistance. During the past year more than 620 students filed Student Aid Application forms (which are very complete) and were given a rating by the chairman of the Student Aid Committee. The aggregate declared need of this number exceeded $120,000. Manifestly $47,742.20 is a very meager sum with which to do a $120,000 job.

Stockbridge School of Agriculture

Senior Placements—S. S. A.

Major	Number		Placed		Home Project		Own Job		Unemployed		Employed	
	1937	1938	1937	1938	1937	1938	1937	1938	1937	1938	1937	1938
An. Hus.	24	25	10	11	11	11	2	3	1	0	23	25
Dairy	18	17	11	7	5	5	2	1	0	4	18	13
Poultry	6	14	4	8	2	4	0	1	0	1	6	13
Flori.	9	9	6	3	2	4	1	1	0	1	9	8
Fruit	4	4	1	2	2	2	1	0	0	0	4	4
Veg. Gard.	2	9	0	2	2	4	0	2	0	1	2	8
Hort.	20	14	13	7	3	4	4	2	0	1	20	13
Wild Life	10	8	8	3	1	1	0	2	1	2	9	6
	93	100	53	43	28	35	10	12	2	10	91	90

The general trend of fewer placements is evident in the fields of agriculture and horticulture as well as in general business and industry. Ten seniors were unsuccessful in finding employment as compared to only 2 from the class of 1937. This is especially true in Dairy Industry which really is an industrial type although classiified under agriculture. The number of students majoring in Dairy have been increasing during the past few years and this fact coupled with the very poor season experienced by dairy plants last summer resulted in four seniors being without employment. I believe that some limitation will have to be placed on the number of Dairy majors admitted. The present freshman class enrolled 41 in Dairy. Due to the limited employment possibilities in this field, I feel certain that Placement Training jobs and employment for seniors cannot be found for such a large number.

S. S. A. PLACEMENT TRAINING—MEN STUDENTS

Major	Number Placed		Placed at Home		Returned to School		
	1937	1938	1937	1938	1937	1938	New Transfers
An. Hus.	19	26	6	4	26	22	1
Dairy	16	15	2	—	18	12	—
Poultry	13	11	4	—	16	9	—
Fruit	1	6	3	—	5	5	—
Flori.	8	5	2	—	11	5	1
Hort.	15	33	0	3	15	31	1
Veg. Gard.	7	6	3	1	9	7	—
Wild Life Mgt.	10	10	0	—	8	8	—
Foods	—	10	—	—	—	9	—
	89	122	20	8	108	108	3
At Home	20	8					
	109	130					

Class of 1938—Total 108.
Class of 1939—Total 111.
Total on Placement—130. (22 did not return to school.)

The required six months' placement training for the freshmen was carried out successfully as in the past although the number of students rose to 130 as compared to 109 the previous year. The increased number made job finding more difficult and was augmented by the fact that only 8 returned to the home project for training as compared to 20 of the class of 1938. This meant that 33 additional training jobs had to be located, a very considerable increase. This cannot go on indefinitely because there is a limit to the number of training jobs procurable at least in New England, and by one man. The present freshman class started out with more than 200 members. The class will not number that many on April 1 when they go on placement, but even with a normal shrinkage, required training for this group is going to present some very serious problems, especially in some majors. This further bears out the statement made previously

that some form of selection and limitation will have to be put into operation if enrollment continues to increase or even hold its present level.

The fact that 22 men accepted placement training employment and then did not return for the second year is cause for consideration. There are always a few who do not return for various reasons, but not that many. Following are the reasons for failure to return for the senior year: Attend college—5; Poor scholarship—2; Wrong occupation, no interest—4; Present employment offers opportunity—4; Lack of finances—3; Married—1; Unknown—3. Some method of selection might eliminate some of this loss of time and money.

Another new major, that of Foods and Food Processing, was initiated into Placement Training last spring and summer. This course is limited to 10 members and all were satisfactorily placed for the training period. Experience seeems to indicate that the best opportunity for placing these men is with resort type hotels which means that some will not be employed a full six months.

EMORY E. GRAYSON,
Director.

REPORT OF THE DIRECTOR OF THE EXPERIMENT STATION

Experiment stations, as public service agencies, are organized to contribute to the promotion of the general welfare of the nation. In the past, they have confined themselves very largely, if not entirely, to the research necessary to solve the problems of the farmer. As a result of their efforts it can be shown quite convincingly, that there have been pronounced advances in the efficiency of agricultural production. This contribution might have proved more adequate if there had been provision for the assimilation of the products of efficiency Unemployment is a natural product of efficiency and unless it is so recognized and dealt with it readily reaches a stage where it prominently affects public welfare. Industry, irrespective of its concern with problems of public welfare is not primarily organized to make the solution of these problems its major objective. On the other hand, under our national democratic policy, we are unfamiliar with and resent government interference with business and, as a result it has been a fond hope that the profit system of industry would, if given free rein, solve unemployment, our major social and economic problem. To the extent that a solution has not been forthcoming there has been an appeal to public service agencies. This attitude, while not entirely new, has become more evident during the last several years than through any other similar period in our history

Fortunately, in the field of agriculture, the experiment stations through their research programs have, in the course of the last fifty years fortified themselves with much factual material regarding the progress and future of this industry. To give intelligent leadership to agriculture, an industry so intricately involved in our entire social and economic scheme, is, nevertheless, an assignment that should not be accepted without assurance of comparative freedom from bias or prejudice. In a nation where industry has been practically without restraint in its operations and where extreme competitive activities have had free rein during all time, it requires considerable faith and courage to promote a program that has public welfare and not profit as the first objective. The experiment stations will establish leadership in this service to just the extent that their direction is sound and their research is applicable and dependable. Developments will naturally be slow and no spectacular changes in program or in the nature of results should be anticipated or encouraged.

The major problems confronting present-day society, while not difficult to locate, are so involved in nature that their solution seems an almost insurmountable task without resort to such regulatory measures as are considered generally undesirable. As an illustration, there is produced within the New England states sufficient milk to confront the dairy farmer with difficulty in finding a profitable outlet while another portion of the population, within the same area, is economically unable to obtain a sufficient supply of this commodity to insure the requirements of good health. It is questionable, however, whether this matter can be properly adjusted without dealing with milk as a public utility. The market gardener suffers because of low prices for his produce while the urban

consumer cannot afford to buy fresh vegetables at the price demanded. Eventually we may become convinced of some of the extravagances of a system that is directed solely by the profit motive and then agencies which are primarily concerned with general public welfare will gradually assume a greater degree of leadership in providing a solution for these fundamental problems.

During the last year the Lang Fund was increased by an additional $2,000.00 by Mrs. Henry Lang, the original donor, thus bringing the total support from this source to $12,000.00. The research made possible by this fund has served to advance our knowledge in human nutrition at a time when there is a distinct need for reliable information in a field where there is so much confused thinking because of the high-powered advertising behind numerous nostrums recommended as curatives for nutritional disorders or deficiencies.

Increases in financial support from Bankhead-Jones (Federal) sources have been available for the last four years but these will terminate with June 30, 1940 after which the Massachusetts Experiment Station will receive a total apportionment of approximately $20,000.00 annually from this source. It is hoped that this federal support will, in part, serve to promote certain new and much desired services for which adequate state funds have not been available. Such organized groups as the poultrymen, the greenkeepers, and the arborists, all of whom are convinced of the worthiness of their case, are very insistent in their demands for research.

The poultry industry is in real need for authentic information regarding the merits of the numerous and specific claims of manufacturers of poultry feeds. This phase of the subject has reached such prominence that recent findings have forced modifications in the regulatory laws in some states and it is highly desirable that Massachusetts should keep abreast in this field and be ready to make her proportionate contribution to the general demand for a sounder basis for the evaluation of livestock feeds.

The greenkeepers suffered temporary disappointment in failing to gain favorable legislative action on a request for funds adequate to support research in turf management. The need for this service was felt so keenly, however, that their Association made available a small sum of money to initiate research while anticipated legislative action is pending.

The demands of the arborists have been satisfied to a considerable degree through the enlarged facilities for nursery culture studies and it is hoped that the problems of the arborists and nurserymen may be correlated sufficiently to be dealt with under the same research procedure.

The completed Nutrition Laboratory is serving as a real clearing house for the type of departmental cooperation that any sound program in this specialized field requires. The physical plant and its equipment provide the flexibility necessary to encourage several departments to utilize these facilities to their full capacity.

At the Cranberry Station, through special funds provided by the Cape Cod Cranberry Growers' Association, it has been possible to continue work in weed control and also to inaugurate investigations in fruit storage. The increased interest not only in blueberries and strawberries but more recently in beach plums is exerting tremendous pressure for expansion in our activities which will need to be met either through additional financial support or through lesser emphasis on research now under way in other fields.

F. J. Sievers,
Director.

(The complete report of the Experiment Station is published in a separate bulletin.)

REPORT OF THE DIRECTOR OF THE EXTENSION SERVICE

The foundation was laid in 1938 for closer coordination of the activities of all State and Federal agencies organized to serve the farmer. The purpose of this plan is to provide more effective services to farm families and to prevent duplication of effort. The task of bringing about a working coordination was

given to the Extension Service, and much of our effort in the coming year wi be devoted to this problem.

Coordination can perhaps best be achieved through the development of long-time program of agricultural land use. Such a program would involve th detailed study of the farm areas of the state, mapping the poor, fair, and goo lands, the pastures, forests and wastelands. Then recommendations for the bes use of these areas would be worked out with local people.

Since such a program would ultimately result in important consideration affecting the individual farm family, the close cooperation of all rural agencie will be vital to its success. Most important, however, will be the attitude an cooperation of the farm families themselves who after all will make the rec ommendations and work out any necessary changes.

The Agricultural Conservation Program continues to be a real stimulus towar improved farm practices. The 7,300 farmers enrolled in the 1938 program mad increases in their use of superphosphate, potash, and lime and in their planting of clover, alfalfa, and green manure and cover crops. The Extension Servic made 5,000 soil tests for farmers and provided them with recommendations o management of their individual soils.

All dairy production testing in Massachusetts is now being handled by the Ex tension Service as a result of reorganization of this work in 1937. At the clos of the year, 352 herds, representing 9,683 cows, were under test, an increase c 57 herds and 1,251 cows over the previous year. Berkshire County dairyme voted in September for the New York milk marketing agreement which raise the price of their product, and a similar agreement is under consideration b dairymen supplying the Lowell-Lawrence area. Revision of the Boston agree ment is also pending.

The annual farm inventory campaign resulted in the distribution of 2,50 inventory books. New account books for poultrymen and for general farmer were also prepared and distributed. This year was the second year of a three year campaign among cranberry growers for the control of false blossom diseas which has seriously threatened the crop. A very large percentage of th growers are cooperating in the drive. The Massachusetts Turkey Growers' Asso ciation this year marketed more than 14,000 "blue tag" turkeys at much bette prices than were obtained in wholesale sales independent of the growers' auctior

The hurricane and flood of September 21 resulted in widespread damage t farm crops and buildings and in some areas to the land itself. The Extensio Service took on the job of estimating farm damage and helping to open th channels for needed financial assistance. The Service also cooperated in settin up programs for marketing wind-fallen apples and timber.

A more detailed account of the regular programs for fruit growers, dairymer poultrymen, vegetable growers, woodlot owners, and other farm groups is avail able in the separately printed Annual Report of the Director of Extension.

The department of community organization and recreation has set itself th task of helping Massachusetts communities develop local leadership for handlin specific community problems. In 21 communities, leaders of local groups wer assisted with such problems as worthy use of leisure time, improvement of th schools, establishment of adult education classes and forums, and other plan for community betterment.

The Extension Service program for homemakers this year emphasized th study of the functions of the home and the role each subject-matter group shoul play in facilitating the accomplishment of these functions. The responsibilit of the family as a cultural agency in conserving enduring human values an time, energy, and material resources in the home received the attention of agent specialists, and homemakers. Local committees of homemakers assumed mor responsibility than ever before in developing and carrying out programs wit these larger objectives in mind.

The home management program emphasized a better use of physical resource and the adoption of better methods of work to give the homemaker more tim for the family and recreation. The buying programs assisted women to ava themselves of consumer information and to adopt buying practices that woul

ve them a better return for the money spent on family needs. Similarily, the rograms in parent education, nutrition, clothing, and home furnishings were nducted not as separate units but as varied elements in the larger enterprise family living.

4-H club projects show little variation from year to year, but several trends re apparent in 1938. Conservation activities are playing a more and more portant part in the work with young people. The camps for conservation aders, junior leaders, and adult leaders are developing into strong training hools for leadership not only in clubwork but in other community enterprises. ealth training for club members receives more attention as the years go by. and Up to Life was the health slogan for 1938. Through stressing good pos-re, club leaders brought out the importance to growing boys and girls of bal-ced diets, adequate rest and sleep, and outdoor exercise.

The thousands of meals prepared by food club members, thousands of gar-nts made by clothing club members, the jars of food put up for winter, the me grown vegetables raised by club gardeners, the eggs and poultry and milk oduced, the handicraft articles made, all bear testimony to the thrift and terprise of the 19,000 club members of Massachusetts.

The future of club work depends on the loyal cooperation of thousands of ult leaders who serve without pay, often for ten and even twenty years. The esent strong position of clubwork in this state is a tribute to the energy and tiative of these men and women.

The complete report of the Extension Service is published as a separate bul-in.

WILLARD A. MUNSON,
Director.

REPORT ON THE HORTICULTURAL PLANTATIONS

Certain phases of Horticulture cannot be taught without plantations. To tempt to teach the pruning of fruit trees, the potting of greenhouse plants, e thinning of a stand of white pine, the judging of vegetables, or the grouping shrubs in effective landscape planting would be both difficult and ineffective thout actual practice. In fact almost everything in this field must be taught th constant reference to plants.

Each department, too, is at the head of an industry which it serves. Problems ise constantly for which answers must be found and these plantations are the oving grounds on which are developed and tested improved practices of all nds. These include such problems as those of soil management, pruning and aining, thinning and selective cutting, the testing and evaluation of new meth-s of pest control and of new varieties, strains and forms. The right answer these questions means millions of dollars to the state and land owners look the College as the one institution where equipment and laboratories and a ained and competent staff make such research work possible and effective.

Because of the nature of the plantations there is an annual surplus of saleable oducts. These are marketed to the best possible advantage but it should be phasized that the production of fruit or lumber or flowers or vegetables for arket is purely incidental. They are a byproduct of experimentation and monstration. We grow nothing for the purpose of selling it for profit; the ate is not competing with producers of these products.

The College fruit plantations cover about 50 acres. All the orchards and all fruit plantings are used for experimental work and most of them are used so for purposes of instruction. About 500 varieties of fruits of all kinds are ow in the plantations. These are carefully checked each year and varieties hich have been tested adequately or which may be spared for other reasons e removed to make room for new sorts. Whole orchards have been removed recent years and the plantations are kept at the minimum required by the mands for service.

These plantations are used for student instruction and practice in pruning, raying and many other important operations which are carried on under con-

ditions chacteristic of commercial fruit plantations. The classes that have use the plantations during the past year have had a total enrollment of 255, in addi tion to numerous farm groups. Every new spray material is tested there, ever promising new variety of fruits is tested there, and dozens of experiments ar under way ranging from soil management to coloring of fruit. Total fruit sale last year amounted to $3863.54.

Mt. Toby Demonstration Forest contains 755 acres. It was purchased fo the College in 1916 since which time it has been used as a student laborator for forestry, a research area, and as a demonstration unit.

Beginning with 1930 its use as a student laboratory has been intensified. I 1931 it was thoroughly mapped, inventoried, and management plans were revise and further developed. Since 1930 all field work for College and Stockbridg students has been conducted at Mt. Toby. This field work is based on genuin practical problems which are carried out to actual and realistic conclusion Because we own Mt. Toby Forest we are able to practice actual forest manage ment, including cutting and harvesting. The uses of this property as a studer laboratory alone justify its existence as college property.

Since October, 1931, 882 students have taken courses given at Mt. Toby. Thi does not mean 882 separate individuals as the same person often took more tha one course. But the figure 882 does represent the student use of Mt. Toby Further, Mt. Toby has been used as a demonstration area for C. C. C., tre wardens and other groups in considerable numbers.

Our first objective at Mt. Toby is demonstration and instruction in applie forestry. Income is incidental although it has reached considerable proportion at times and will increase. Up to and including the fiscal year 1938 cash return from Mt. Toby have averaged $926.82 per year. These returns have bee uneven, as is natural on a property of this kind where harvests are often per odic. These returns do not include interdepartmental sales which at times hav reached considerable volume and the total sum would amount to several thou sand dollars. It is expected that there will be a considerable net return to th Commonwealth when present salvage operations are completed.

Floriculture plantations include about one acre of land out-of-doors, 14,00 square feet of greenhouse space and 2200 feet of cold frames and hotbeds.

Hundreds of species and varieties are grown, many of them in small quantitie for classroom and laboratory study, for use at College functions and activitie for demonstration and display purposes and for trial and experimental work.

These plants are used constantly in class work and it would be impossible t teach floriculture without them. Students are given an opportunity to grow an handle the species and varieties of greenhouse and garden plants which the would handle if they were employed in commercial greenhouse establishment in greenhouses on private estates, or in public parks, and in addition they wor with many of the so-called conservatory plants. During the past year class using these facilities had a total enrollment of 328.

No flowers or plants are grown for sale but the surplus is marketed locally Sales for the past year amounted to $295.48.

Olericulture plantations include about five acres of vegetable gardening lan out-of-doors, 4200 square feet of greenhouse and plant house space, and 300 square feet of cold frames.

These plantations are used (1) to grow vegetables used for class instructio (2) to demonstrate to students principles and methods involved in olericultur (3) to carry on research leading to a more detailed knowledge of vegetable cro plants and the factors involved in their production and marketing, and (4) t demonstrate the results obtained experimentally so growers may evaluate the for their own purposes.

The number of varieties and species grown varies from year to year as tes and trials are turned in new directions. During the past five years the plan ings have varied from 500 to 1000 varieties representing 40 to 60 species vegetables.

The classes using the plantations during the past year have had a combine enrollment of 251.

No crops are grown for commercial purposes. The sale of produce therefore consists only of surplus material. In 1938 most of the crops in the plots were entirely destroyed by the heavy rains of July and September. The receipts for products sold were therefore abnormally low—$68.60.

R. A. Van Meter,
Head of the Division of Horticulture.

REPORT ON THE COLLEGE FARM

The Farm comprises 270 acres of land of which in 1938 forty-three acres were used for corn, three acres for root crops and the balance for hay and pasture. Because of the extremely heavy rainfall which was responsible for several of the fields of corn being under water numerous times during the growing season, the yield of corn was the lowest in a great many years and the amount harvested was approximately two-thirds the normal yield. For the same reason, the yield of mangels and carrots was even lower and was less than half the normal yield. The wet season however favored hay and 257 tons of hay and 40 tons of rowen were cut in addition to filling two silos with grass silage. One of these silos was filled with the addition of molasses to the green material and the other with the addition of phosphoric acid. A total of 208 tons of green hay was harvested in this manner.

The College maintains herds of the four principal breeds of dairy cattle as well as Milking Shorthorns and Herefords, numbering a total of 188 head on December 1. This herd has remained accredited free for Tuberculosis and remained negative to Bang's Disease throughout the year. Several very creditable production records have been made during the past year. Bay State Dorothea completed a three-year-old record in Class B of 19,663 pounds of milk and 670 pounds of fat in 305 days. This placed her first in her class in the 1938 U. S. Honor List and second among the all-time state leaders. Bay State Colantha Princess completed a lifetime record of 207,910 pounds of milk and 7,740 pounds of butter fat. Only six cows in the country have officially exceeded the 200,000 pound mark. The entire herd of 71 Holstein, Ayrshire, Guernsey, Jersey and Shorthorn cows averaged 8,991 pounds of milk and 399 pounds of butter fat or a total production of 307,761 quarts of milk with a valuation of $20,581.33. Four bull calves were sold as sires to other State Institution herds and four cows or heifers were also supplied to other State Hospital Farms. In addition, ten bull calves were sold to farmers.

The other livestock on the Farm includes 26 Percheron horses, one Morgan stallion loaned by the United States Department of Agriculture, 43 Shropshire sheep, 51 Southdown sheep and 39 Chester White swine. The Percheron horses include one stallion, seven brood mares, seven geldings and eleven fillies, young geldings and foals. During the year 11 outside mares were bred to the College stallion. Five boar pigs, 12 sow pigs and 33 feeder pigs were supplied to other State Institutions, and 20 boar pigs, 23 sow pigs, one Southdown ram and two Shropshire rams were sold outside for breeding purposes.

The Division of Agriculture has made increased use of the Farm livestock. Frequent use has been made of the animals for judging work, management studies, fitting and showing, etc. In addition, the farm supplied the Animal Husbandry Department with 27 sheep, 14 swine and 14 head of cattle for the Meats course. Milking tests were given to 31 students and there was a total of 178 practice periods in milking. Teaming tests were given to 200 Stockbridge and four-year men and there were 312 practice periods in teaming. An attempt has been made to employ as many students as could be used efficiently. Four Stockbridge School boys worked on the farm for their placement training, five four-year men worked in the summer and 49 students worked part time during the school year. The Farm payroll included $3,277.17 paid to students. On April 27 the farm gave a demonstration for a group of 50 students and faculty from Lowell Textile Institute. This program included shearing sheep, tying fleeces, sacking wool, castrating lambs, docking lambs, management talks and

a parade of livestock. Many other groups including Breeders Organizations School groups and others are conducted around the farm each year.

Another important function of the farm is to provide stock and equipmen for experimental use. Several seeding mixtures for hay and pasture have bee tried in cooperation with the Agronomy Department. Sixteen cows were use in a feeding trial with grass silage and eight cows were used in a mineral experi ment under the direction of Professor J. G. Archibald. Professor M. E. Ens minger used ten Shropshire lambs in an efficiency feeding study. The entir Southdown and Shropshire flocks have been used in a cooperative project wit the U. S. D. A. in order to determine the inherent capacity of specific familie or strains of sheep for the utilization of feed and the production of meat an wool, and to improve them by a study of the manner in which they transmi these characters.

Accurate records are kept on all sheep, including lambing records, gains i weight, type scores made on all lambs at 140 days of age, and carcass grade of all sheep slaughtered. The wool on each sheep is graded yearly, weighed an samples are analyzed by the Bureau of Animal Industry of the U. S. D. A. A specialist from the Bureau visits the college at least once each year to counse with a committee from the college in grading the mutton and wool characteristic of the flock. This contact helps to keep the records uniform and comparabl with similar records at other institutions.

The primary function of the farm is to provide a laboratory for the Divisio of Agriculture. Experiments with livestock and crops is a second importan function. In addition the farm supplied 42 males for breeding purposes pri marily to Massachusetts Farmers in 1938, and it continues to serve as a demon stration unit for modern crop and livestock farming and entertains severa hundred visitors yearly.

CLARENCE H. PARSONS,
Assistant Professor of Animal Husbandr and Superintendent of Farm.

REPORT ON THE POULTRY FARMS

The Tillson Farm is used, at present, for eight major research projects in poul try genetics and several preliminary or minor projects. Single Comb Rhod Island Reds are the only breed kept on this farm. On November 30, 1938, ther were 928 females and 184 males on hand as compared with 990 females and 18 males on December 1, 1937. The generation hatched in 1937 was particularl superior to previous generations in mortality rate in the laying houses and i freedom from broodiness. In the 1938 egg production studies, 231 birds average 205.3 eggs per bird in 365 days. In this group, the average egg size to Januar 1st was 53.7 grams or 22.8 ounces per dozen. The first year of this project 1916-1917, 330 birds averaged 133.67 eggs. Ten years later, 1926-1927 the eg production was the same as it was this last year but the mortality was 32.57% and 19.31% were broody. This past year the mortality rate without culling fo a full year was 12.5 per cent and only 2.02 per cent of the birds became broody i this generation. Hen 560 laid 305 eggs in 365 days and the average weight of he eggs to January 1st was 54.7 grams or 23.16 oz. per dozen. She is the twenty fifth 300-egger in 10 years and the twenty-seventh to date. The flock has bee certified pullorum clean for 1939.

There were 1342 females and 145 males on the College Farm on December 1 1937. All of these birds had been sold or had died June 1st, 1938, due to an out break of acute avian bronchitis during the spring. On November, 1938, ther were 1294 females and 270 males on hand. (As of February 1, 1939 there ar 1174 females and 90 males on hand). Only four breeds of poultry are kept an no turkeys, ducks or geese. All four breeds are used for student practice wor which includes judging, culling and feeding and management practice. Th White Leghorns and Barred Plymouth Rocks have been used for breeding an pedigreeing demonstrations and studies. Eggs from the entire flock have bee used in research studies into the causes of fishy flavor in eggs and embryo tem

erature studies. A flock of pheasants have been maintained for instructional ork and to study the effect of artificial illumination on them. Poultry at the ollege farm are used by graduate, four-year, Stockbridge and Winter Course udents and also in Interscholastic Judging Contests of which there are several uring the year.

The college poultry farm will be completely reorganized during 1939. Several ouses have been remodeled. In cooperation with the Engineering Department, ree pens, each housing 100 Barred Rock pullets, will be used to study the value insulation in poultry houses. Three pens each housing 100 Rhode Island Red ullets will be used for studying the value of out of season hatching, a project f special interest to the Extension Poultryman. Plans have been drawn for ousing equipment, which has already been purchased or donated, so that istruction can be given in laying cage practice and possibly some nutritional nd management research undertaken in this new phase of poultry husbandry. t is hoped that some of those buildings beyond remodeling and repair can be radually replaced by new modern structures.

The poultry, egg, and surplus stock from the Tillson Farm are sent to the ollege farm and sold with the products produced there. These products are sed for the instruction of poultry, home economics and hotel management tudents.

Including the increase in inventory of $1825.04, there was an income from he two farms of $11,267.70 during 1938. Although carried on the books at he original valuation of $27,413.79, the depreciated value of the two farms ould be only $11,224.38. Considering the nature of the work, the disposal of he birds from the College farm during the spring and summer of 1938 and the act that the average age of the buildings on both farms is 19 years, this income an be considered excellent. A limited number of breeding birds, hatching ggs, and baby chicks are sold each year at prevailing prices and our stock seems o be giving a good account of itself on outside farms. Due to the student ractice work in incubation and brooding and the nature of certain experimental rojects, some surplus over our own requirements is unavoidable and must e marketed.

R. T. Parkhurst,
Head, Department of Poultry Husbandry.

REPORT OF THE TREASURER

The financial report of the College for the fiscal year ended November 3(1938, is herewith submitted.

The State and Federal appropriations to the College for Current Maintenanc show an increase of $38,855.62 over the previous year. The following stat ment gives a summary of these appropriations:

Dec. 1, 1937	Balance	$251,118.15	
Nov. 30, 1938	Funds available	1,987,017.15	
			$2,238,135.3
Nov. 30, 1938	Expenditures	1,841,796.36	
Nov. 30, 1938	Reverted to State Treasurer—Specials	1,511.87	
Nov. 30, 1938	Balance—Maintenance	49,526.16	1,892,834.3
			$345,300.9

This balance is made up as follows:

College—current	$6,645.31
College—special	128,709.29
College—Boarding Hall	4,741.37
Federal Funds	113,874.27
Endowment Funds	19,540.62
Trust Funds	71,790.05
	$345,300.91

The balance of the College current account of $6,645.31 carries outstandin obligations of approximately $2,126.74 which will change this balance to abou $4,518.57. There is no balance brought forward on the fuel account as th year has been changed to agree with the fiscal year of the College.

Our Endowment Funds are in charge of the Springfield Safe Deposit an Trust Company under agency control agreement. The cost of service for th year amounts to $179.64. The total amount of our Endowment Funds at pa value is $154,873.52. Our return from this investment, principal and incom was $7,158.18, divided as:

Interest	$6,918.1
Profit on sale of securities	15.3
Unearned discount	49.8
Interest on loans to students	174.9

This gives an interest return of 4.5% on the total cost of our securities. Th market value of the securities November 30, 1938, was $141,250.32. This an increase of $6,525.22 over a year ago. No additional endowments hav been received during the past year.

During the year there were 133 loans made to students aggregating $9,645.5(and 108 scholarships granted aggregating $3,525.00.

The replacement of our Young Stock Barn is virtually completed, the ap proximate cost of which is $25,000.00. The renovation of South College wa started the first of October, and the building will be completed about th middle of February, at an approximate cost of $63,000.00.

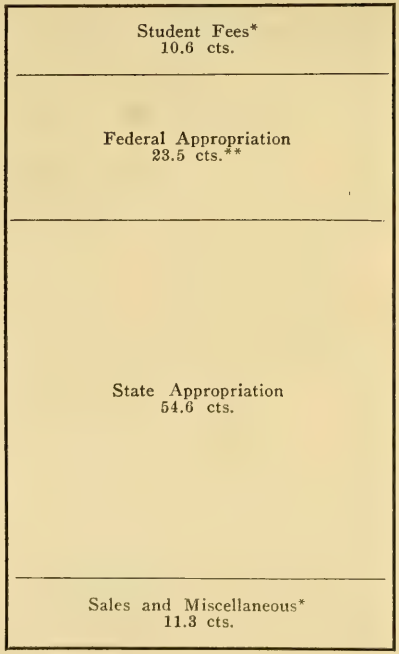
The receipts of the College turned into the Treasurer of the Commonwealt were $344,576.38. This is an increase of $24,374.67 over the previous yea but these receipts include $25,448.23 from the Dining Hall which was brougl under the State appropriation by an act of the Legislature of the past year.

An examination of the accounts of the Institution for the year ended Noven ber 30, 1937, was made under the direction of the State Auditor.

A detailed statement of receipts and expenditures follows.

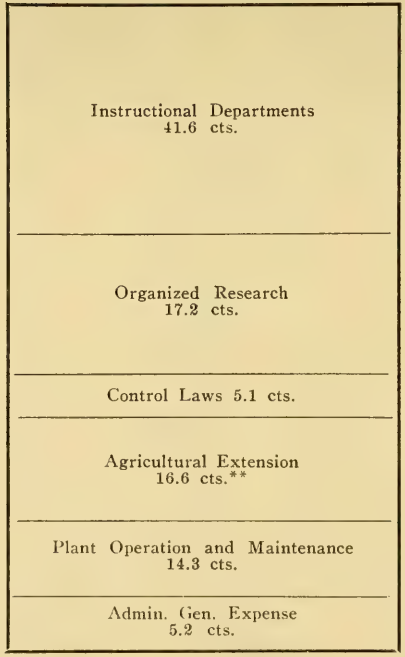
Fred C. Kenney,
Treasurer.

How the Dollar was Provided

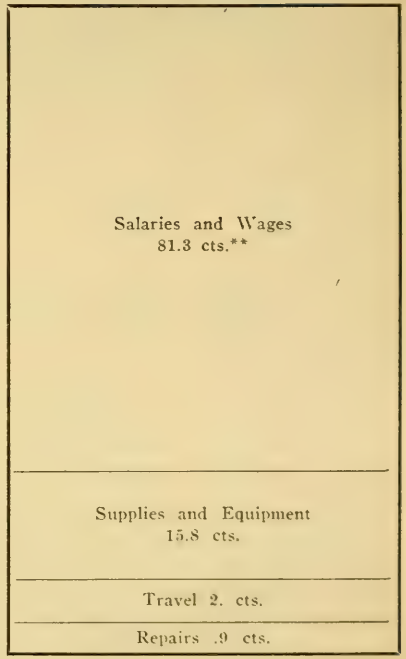


How the Dollar was Spent

By Function



By Object



* The receipts of Student Fees and Sales and Miscellaneous revert to the Treasurer of the Commonwealth and the College does not have the use of these funds. For the purposes of this chart, however, these receipts have been deducted from the State Appropriation, and are shown independently as if the College had the use of the funds.

** 3 cents of each dollar provided and spent must be used to help pay salaries of county extension agents.

Schedule A

CURRENT RECEIPTS AND DISBURSEMENTS

For the Year Ended November 30, 1938

Balance of State and Federal Funds, Nov. 30, 1937			$149,912.5
Receipts, excluding State and Federal grants for plant additions:			
Education and general:			
Public Appropriations:			
State (See Schedule A-3)	$1,152,120.00		
Federal regular (See Schedule A-2)	354,576.77	$1,506,696.77	
Endowment income and Smith Hughes Fd.		5,673.32	1,512,370.0
Student fees (Schedule A-1)		155,208.00*	
Sales and Service of educational depts. and other miscellaneous sources (See Schedule A-4)		50,066.79*	
Control Law Fees (See Schedule A-5)		74,042.23*	279,317.02
Auxiliary Enterprises:			
Rent from dormitories and private dwellings		37,761.80	
Student hospital fees		250.50	
Boarding Hall (From September 1, 1938 only)		25,448.23	
Miscellaneous		1,798.83	65,259.36
Total Receipts			$1,856,946.4
Total Funds Available			$2,006,858.9
Disbursements:			
Educational and General (including Auxiliary Enterprises):			
General administration expense	$74,387.96		
Instruction	611,030.81		
Organized Research	253,441.82		
Control Laws	72,935.13		
Agricultural Extension	243,766.38		
Operation and Maintenance of Physical Plant	209,174.76		
Boarding Hall (From September 1, 1938 only)	22,758.63		
Total Education and General (See Schedule A-6)		$1,487,495.49	
Remittances to State Treasurer:			
Income from Student Fees, Sales and Service and Auxiliary Enterprises		$344,576.38*	
Total		$1,832,071.87	
Reverted balance of maintenance appropriation		49,526.16	1,881,598.0
Balance Nov. 30, 1938			$125,260.9

* These receipts totalling $344,576.38 revert to the Treasurer of the Commonwealth and the College does not have the use of these funds.

Schedule A-1

INCOME FROM STUDENT FEES

For the Year Ended November 30, 1938

Tuition:	
College—Regular Session	$122,424.0
College—Summer Session	2,028.0
Stockbridge School of Agriculture	28,977.5
Short Courses—Winter School	1,066.0
Summer School	189.0
Nature Guide School	523.5
Total	$155,208.0

Schedule A-2

FEDERAL APPROPRIATIONS — BY FUNDS

For the Year Ended November 30, 1938

	Total	College	Experiment Station	Extension Service
Adams Fund	$15,000.00		$15,000.00	
Bankhead-Jones	145,080.45	$71,969.69	14,773.05	$58,337.71
Capper-Ketchum	23,869.86			23,869.86
Federal Smith Lever	46,443.13			46,443.13
Additional Federal Cooperative	8,550.00			8,550.00
Hatch Fund	15,000.00		15,000.00	
Land Grant	7,300.00	7,300.00		
Morrill Fund	16,666.67	16,666.67		
Nelson Fund	16,666.66	16,666.66		
Purnell Fund	60,000.00		60,000.00	
	$354,576.77	$112,603.02	$104,773.05	$137,200.70

Schedule A-3

SUMMARY OF STATE AND FEDERAL APPROPRIATIONS

For the Year Ended November 30, 1938

	Total	State	Federal
College Maintenance	$907,579.44	$794,976.42	$112,603.02
Dining Hall Maintenance from September 1, 1938	27,500.00	27,500.00	
Experiment Station* Maintenance	322,259.38	217,486.33	104,773.05
Extension Service Maintenance	255,031.27	117,830.57	137,200.70
Total	$1,512,370.09	$1,157,793.32	$354,576.77

* Includes Control Laws Appropriation.

Schedule A-4

INCOME FROM SALES AND SERVICE

For the Year Ended November 30, 1938

Agriculture:		
Animal Husbandry	$1,043.99	
Dairying	19,038.76	
Farm	8,011.72	
Floriculture	295.48	
Horticultural Manufactures	361.88	
Mount Toby	252.70	
Pomology	3,863.54	
Poultry	8,637.11	
Vegetable Gardening	68.60	$41,573.78
Arts and Sciences:		
Entomology	27.50	
Psychology	20.00	
Miscellaneous	9.50	57.00
Library Fines		137.89
Services:		
Grounds	145.64	
Plant—Labor	1,062.94	
Plant—Heat, Light and Power	1,787.94	2,996.52
General:		
Business Office	79.33	
Telephone Commissions	99.81	
Plant Sales	557.45	
Miscellaneous	32.11	768.70
Experiment Station:		
Bacteriology	692.05	
Cranberry Station, Wareham	2,541.33	
Farm	461.25	
Veterinary	102.00	
Field Station, Waltham	435.67	4,232.30
Extension Service:		
Correspondence Courses	101.75	
Miscellaneous	198.85	300.60
Total		$50,066.79

Schedule A-5

INCOME FROM CONTROL LAW FEES

For the Year Ended November 30, 1938

Commercial Feedstuffs Law	$23,423.55
Dairy Cattle Certification Law	6,939.21
Fertilizer Control Law	15,848.86
Milk Testing Inspection Law	997.56
Poultry Disease Law	26,655.90
Seed Testing Law	177.15
Total	$74,042.23

Schedule A-6

Appropriations from State and Federal Funds together with Expenditures thereof for the Year Ended November 30, 1938

	TOTAL		STATE		FEDERAL	
	Appropriation	Expenditures	Appropriation	Expenditures	Appropriation	Expenditures
College						
Personal Service:						
Administration	$59,500.00	$58,698.09	$59,500.00	$58,698.09		
Instruction	457,976.34	448,672.76	339,700.00	341,328.86	118,276.34	107,343.90
Maintenance						
Departmental	47,565.80	48,548.97	47,565.80	48,548.97		
Farm	34,000.00	34,796.77	34,000.00	34,796.77		
Operating	122,000.00	122,948.71	122,000.00	122,948.71		
Maintenance						
Travel	5,508.13	7,161.47	5,508.13	7,161.47		
Supplies and Equipment	99,214.92	99,044.81	99,214.92	99,044.81		
Fuel	55,000.00	54,579.81	55,000.00	54,579.81		
Farm	1.80	—1,515.33	1.80	—1,515.33		
Repairs	18,125.32	13,285.92	18,125.32	13,285.92		
Replacements	7,000.00	6,811.12	7,000.00	6,811.12		
Printing Reports	1,300.00	1,083.63	1,300.00	1,083.63		
Trustee Expenses	1,277.35	476.80	1,277.35	476.80		
Total College	$908,469.66	$894,593.53	$790,193.32	$787,249.63	$118,276.34	$107,343.90
Organized Research						
Personal Service	213,031.05	214,920.43	118,190.00	117,086.29	94,841.05	97,834.14
Travel	4,600.00	4,427.87	2,300.00	3,109.41	2,300.00	1,318.46
Supplies and Equipment	34,773.23	34,093.52	27,141.23	28,156.58	7,632.00	5,936.94
Total Organized Research	$252,404.28	$253,441.82	$147,631.23	$148,352.28	$104,773.05	$105,089.54
Control Laws						
Personal Services	$61,180.00	$59,251.48	$61,180.00	$59,251.48		
Travel	5,169.43	5,035.33	5,169.43	5,035.33		
Supplies and Equipment	9,621.96	8,648.32	9,621.96	8,648.32		
Total Control Laws	$75,971.39	$72,935.13	$75,971.39	$72,935.13		
Extension Service						
Personal Service	$207,400.70	$203,049.23	$80,200.00	$79,931.51	$127,200.70	$123,117.72
Travel	23,500.00	22,419.74	16,500.00	15,386.57	7,000.00	7,033.17
Supplies and Equipment	18,068.00	18,297.41	15,068.00	15,063.51	3,000.00	3,233.90
Total Extension	$248,968.70	$243,766.38	$111,768.00	$110,381.59	$137,200.70	$133,384.79
Boarding Hall						
Personal Service	$7,800.00	$7,333.56	$7,800.00	$7,333.56		
Food Supplies	18,000.00	14,532.42	18,000.00	14,532.42		
Other Supplies and Equipment	1,700.00	892.65	1,700.00	892.65		
Total Boarding Hall	$27,500.00	$22,758.63	$27,500.00	$22,758.63		
Total	$1,513,314.03	$1,487,495.49	$1,153,063.94	$1,141,677.26	$360,250.09	$345,818.23

Schedule B

STATEMENT OF SPECIAL APPROPRIATIONS

APPROPRIATIONS		
P.W.A.		
1. Renovation of South College	$63,000.00	
2. The Chapel (balance from 1937)	405.10	
3. Fence for Girls' Athletic Field	1,500.00	$64,905.10
STATE		
Capital Improvements		
1. Construction Highway (1937 balance)	2.40*	
2. 1935 Tennis Courts (1937 balance)	2,353.36	
3. Completion Biological Laboratory (1937 balance)	5,894.88	
4. Campus Electric System (1937 balance)	1,321.34	
5. Equipment for Gas Plant (1937 balance)	481.13	
6. Fire Protection (1937 balance)	4,409.68	
7. Propagation House, Waltham (1937 balance)	1,222.87	
8. Tiling Ice Cream Laboratory (1937 balance)	34.18	
9. Furnishing the Chapel (1937 balance)	1,563.99	
10. Renovating Electric Wiring	4,000.00	
11. Repairing Ammonia Compressor	1,500.00	
12. Improvements to Draper Hall	1,200.00	
13. Rebuilding Laboratory Tables, Marshall Hall	3,000.00	
14. Replacing Young Stock Barn	25,000.00	
15. Oiling Campus Roads and Drives	1,500.00	
16. Painting Buildings	3,000.00	
17. Repair and Paint French Hall Greenhouse	2,000.00	
Total	$58,483.83	
Other Purposes		
18. Hurricane and Flood Damage	55,000.00	
19. Dutch Elm Disease	5,000.00	
20. 1937 Emergency Needs	1,509.47*	
21. 1938 Emergency Needs	3,000.00	
22. Aid to Certain Students	5,000.00	
Total	$69,509.47	127,993.30
Refunds		231.51
Total Special Appropriations		$193,129.91
EXPENDITURES		
P. W. A.	$11,438.48	
State		
For Capital Improvements	28,345.11	
For Other Purposes	23,125.16	62,908.75
*Unexpended balances of 1937 finished projects returned to State Treasury		1,511.87
Total Expenditures		$64,420.62
Balance carried forward for 1939 construction		$128,709.29

Schedule C

SUMMARY OF INVENTORY OF PHYSICAL PLANT
(At Cost)

November 30, 1938

Land			$185,815.54
Buildings:	College	Experiment Station	
Classroom, research and administration	$1,464,413.81	$67,374.38	
General	344,000.00		
Service	156,733.00	11,525.00	
Farm Buildings and sheds	94,107.38		
Waltham Field Station, Laboratory	58,897.37		
Cranberry Experimental Laboratory at Wareham		8,005.00	
Poultry Experimental Laboratory, Tillson Farm		10,900.00	
Residential Properties	50,500.00	10,000.00	
Auxiliary and Activities	479,850.00		
Total	$2,648,501.56	$107,804.38	$2,756,305.94
Improvements other than Buildings			
Lines, Mains and Walks	$164,321.61		
Power Plant Equipment	151,657.71		
Total	$315,979.32		$315,979.32

Equipment			
Furniture and Fixtures	$273,600.45	$19,754.00	
Scientific apparatus, equipment and collections	361,968.53	79,419.13	
Machinery and tools	76,131.03	31,118.77	
Livestock and Poultry	34,165.51	2,971.80	
Total	$745,865.52	$133,263.70	$879,129.22
Total Physical Plant			$4,137,230.02
Supplies			
General	$46,502.38	$3,677.47	
Laboratory and Classroom	58,337.64	34,199.54	
Farm	10,208.18	1,785.73	
Merchandise, including containers	12,949.90	7,725.40	
Total	$127,998.10	$47,388.14	175,386.24
Total Inventory			$4,312,616.26

Area of Land Owned by College — in Acres

College Estate	734.59
Cranberry Station, Wareham	28.36
Mt. Toby Demonstration Forest	755.27
Rifle Range	46.20
Pelham Quarry	.50
Waltham Field Station, Waltham	55.39
	1,620.31

Schedule D

ATHLETIC DEPT.

Statement of Cash Receipts and Disbursements

For the Period July 1, 1937 to June 30, 1938

	Receipts	Disbursements	Balance
Balance—July 1, 1937			$3,697.97
Student Tax 1937-1938	$17,846.25	$ 69.73	17,776.52
Season Tickets	520.00		520.00
Federal Tax on Sale of Tickets	659.10	659.10	—
Sports:			
Baseball	739.78	2,064.05	—1,324.27
Basketball	1,203.95	2,769.43	—1,565.48
Football	3,920.00	6,734.80	—2,814.80
Hockey	355.00	1,109.71	— 754.71
Soccer	88.50	844.48	— 755.98
Swimming	105.79	413.89	— 308.10
Track	296.80	2,113.48	—1,816.68
General Administration, Maintenance and Equipment	1,771.16	9,468.93	—7,697.77
Totals	$27,506.33	$26,247.60	$1,258.73
Balance—June 30, 1938			$4,956.70

Schedule E

COLLEGE STORE

Statement of Income and Expense

For the Year Ended August 31, 1938

	Text Books	Supplies	Luncheonette	Totals
Income:				
Sales	$21,988.15	$17,265.07	$9,631.16	$48,884.38
Cost of Goods Sold:				
Inventory Aug. 31, 1937	$675.40	$2,064.56	$325.87	$3,065.83
Purchases	19,577.04	14,799.72	6,401.10	40,777.86
Total	$20,252.44	$16,864.28	$6,726.97	$43,843.69
Inventory Aug. 31, 1938	1,218.22	2,876.04	252.39	4,346.65
Net	$19,034.22	$13,988.24	$6,474.58	$39,497.04
Gross Profit	$2,953.93	$3,276.83	$3,156.58	$9,387.34

Expenses:	
Salaries and Labor	$5,413.4
Rent	500.0
Insurance	120.7
Repairs	108.9
Office	98.5
Advertising	59.7
Telephone	21.3
Total Expense	$6,322.7
Net Profit before Depreciation	$3,064.5
Depreciation	535.0
Net Profit for Year	$2,529.5

Schedule F

STATEMENT OF INCOME AND EXPENSE — DINING HALL

For the Year Ended November 30, 1938

Income:		
Board—less refunds	$82,376.71	
Cafeteria	12,058.11	
Special Service	1,882.78	
Sale of Provisions	1,200.43	
Miscellaneous	453.72	
Gross Sales		$97,971.7
Cost of Goods Sold:		
Inventory—Dec. 1, 1937	$3,433.60	
Purchase of Food	51,857.22	
Total	$55,290.82	
Less—Inventory November 30, 1938	2,898.27	
Net Cost of Goods Sold		$52,392.5
Gross Profit		$45,579.2
Expense:		
Salary and Wages	$29,229.29	
Rent—Nine Months	2,100.00	
Fuel	654.79	
Laundry	1,135.53	
Supplies and Equipment:		
Repairs and Parts	617.03	
Other	1,145.49	1,762.52
Office Expense:		
Stationery and Supplies	119.17	
Telephone	79.46	
Travel	58.50	257.13
Total Expense		$35,139.2
Net Profit		$10,439.9
Purchase of New Equipment		1,525.5
Net		$8,914.3

Schedule G

SUMMARY OF ENDOWMENT FUNDS

Name and Description of Fund	Fund Balance 11/30/38	Income Balance 12/1/37	Income for Year	Expenditures for Year	Income Balanc 11/30/3
Income Designated for General Purposes:					
Burnham Emergency Fund	$7,557.49	$238.13	$311.95	$328.44	$221.6
William R. Sessions Fund	5,000.00	94.73	202.50	67.05	230.1
William Wheeler Fund	10,000.00	132.83	312.50	208.30	237.0
Total	$22,557.49	$465.69	$826.95	$603.79	$688.8
Income Designated for Restricted Purposes:					
Scholarships, Loans and Prizes					
Alvord Dairy Scholarship—Scholarships	$4,000.00	$817.33	$225.14	$365.16	$677.3
D. K. Bangs Fund—Loans, Scholarship	7,070.79	10,151.97	31.76	675.12	9,508.6
F. G. Crane Fund—Scholarships	25,250.00	2,819.55	1,243.28	1,542.33	2,520.5
J. D. W. French Fund—					

Scholarships, loans, prizes & judging team expenses	10,000.00	499.22	471.24	539.98	430.48
Gassett Scholarship Fund—Scholarships	1,500.00	210.32	60.73	131.79	139.26
Charles A. Gleason Fund—Scholarships and Loans	5,000.00	527.33	335.23	244.90	617.66
Grinnell Prize Fund—Prizes	1,000.00	252.74	4.54	51.30	205.98
Clarence A. Hardy Scholarship Fund—Scholarship	98.99	5.52	2.37	—	7.89
Porter L. Newton Fund—Scholarships	23,411.33	614.61	1,178.39	249.52	1,543.48
Betsey C. Pinkerton Fund—Scholarships	4,500.00	190.73	229.10	221.13	198.70
Mary Robinson Fund—Scholarships	1,550.00	329.38	522.76	388.59	463.55
Betty Steinbugler Fund—Prizes	200.00	.13	5.54	—	5.67
Whiting Street Scholarship Fund—Scholarships	2,000.00	348.34	72.01	347.58	72.77
Helen A. Whittier Scholarship Fund—Scholarships	3,193.45	134.33	170.34	153.91	150.76
Total	$88,774.56	$16,901.50	$4,552.43	$4,911.31	$16,542.62
Miscellaneous Purposes					
George H. Barber Fund—General Athletics	$5,000.00	$1,045.54	$269.24	$794.55	$520.23
John C. Cutter Fund—Books on Hygiene	1,000.00	43.91	27.50	44.66	26.75
Endowed Labor Fund—For Student Labor	9,000.00	1,276.76	373.79	342.31	1,308.24
Hills Fund—to establish and maintain a botanic garden	15,921.17	362.88	606.40	969.28	—
Library Fund—Books for Library	10,375.52	77.45	397.35	200.63	274.17
Robert F. Pomeroy Library Fund—Books for Horticulture and Landscape Architecture	1,500.00	106.56	75.00	25.22	156.34
Alan Leon Pond Memorial Fund—General Athletics	744.78	17.28	29.52	23.38	23.42
Total—Miscel.	$43,541.47	$2,930.38	$1,778.80	$2,400.03	$2,309.15
Total Income Designated for Restricted Purposes	132,316.03	19,831.88	6,331.23	7,311.34	18,851.77
Grand Total	$154,873.52	$20,297.57	$7,158.18	$7,915.13	$19,540.62

Schedule H

OPERATION OF STUDENT LOAN FUNDS

	Loans Outstanding Dec. 1, 1937	Loans Made 1937-1938	Loans Paid 1937-1938	Loans Outstanding Nov. 30, 1938
K. Bangs Fund	$5,383.33	$7,281.50	$7,150.60	$5,514.23 (a)
Charles A. Gleason Fund	368.00	—	40.00	328.00 (a)
Massachusetts State Club	300.00	238.00	268.00	270.00 (b)
H Club for Boys	575.00	664.00	524.00	715.00 (b)
H Club for Girls	—	47.00	4.20	42.80 (b)
Vincent Goldthwait Loan Fund	3,312.70	1,415.00	1,356.50	3,371.20 (b)
Lotta Agricultural Loan Fund	1,417.50	2,831.60	2,693.80	1,555.30 (c)
	$11,356.53	$12,477.10	$12,037.10	$11,796.53

(a) Income from fund used for loans.
(b) Principal and income used for loans.
(c) Fund under direction of Trustees of Lotta Agricultural Loan Fund, loans handled through the College.

Schedule I

INVESTMENTS

November 30, 1938

Name	Interest Rate	Par Value or number of shares	Cost	Market Value
Amherst Savings Bank	3	$5,873.52	$5,873.52	$5,873.52
Armour & Company, due 1957	4	5,000.00	4,950.00	4,850.00
Bethlehem Steel, due 1966	3¾	2,000.00	1,897.92	2,005.00
Boston & Albany		4	400.00	302.00
Carolina Power & Light, due 1956	5	3,000.00	2,798.04	2,932.50
Central Pacific Ry. First Ref. due 1949	4	2,000.00	1,890.56	1,435.00
Cities Service Power & Light due 1949	5½	1,000.00	930.00	735.00
Cities Service Power & Light due 1952	5½	3,000.00	2,940.00	2,205.00
Cleveland Union Terminal 1st C due 1977	4½	3,000.00	2,768.04	2,175.00

Columbus Venetian Stevens Bldg. due 1955	5	2,400.00	2,352.00	450.
Columbus Venetian Stevens Bldg.		12	588.00	112.
Community Public Service due 1960	5	2,500.00	2,500.00	2,512.
Community Public Service		50	2,475.00	1,400.
Florida Power & Light Co. due 1954	5	5,000.00	4,875.00	4,750.
Gatineau Power Co. due 1956	5	1,000.00	927.50	1,045.
Great Northern Railway Co. due 1967	3¾	5,000.00	4,875.00	3,700.
Illinois Power & Light Corp. due 1956	5	4,000.00	3,840.00	3,860.
Illinois Power & Light Corp. due 1954	5½	5,000.00	5,137.50	4,975.
Illinois Power & Light Corp. due 1953	6	6,000.00	5,960.00	6,105.
Indiana Hydro. Elec. Power Co. due 1958	5	1,500.00	1,477.50	1,305.
Indianapolis Water Wks. Securities due 1958	5	5,000.00	4,962.50	4,650.
Monongahela West Penn Pub. Ser. due 1960	4½	5,000.00	5,000.00	5,375.
New England Power Assoc. due 1954	5½	5,000.00	4,900.00	4,600.
New York Central R. R. Co. due 1998	4	1,000.00	965.00	655.
New York Central R. R.		22	2,200.00	412.
Ohio Public Service due 1962	4	1,000.00	1,068.75	1,062.
Pennsylvania Company due 1963	4	2,000.00	2,005.42	1,920.
Penn Power & Light due 1981	4½	3,000.00	3,031.02	3,150.
Prudence Sec. Corp. due 1961	5½	3,900.00	3,834.70	2,359.
Puget Sound Power & Light due 1949	5½	5,000.00	5,050.00	3,850.
Republic Steel Corp. Gen. "C" due 1956	4½	2,000.00	1,645.42	1,880.
Scranton Spring Brook Water Securities due 1967	5	10,000.00	9,450.00	8,050.
Texas Electric Service Co. due 1960	5	3,000.00	2,910.00	2,955.
Theta Corp. of Theta Chi Frat'ty due 1942	5	12,000.00	12,000.00	12,000.
U. S. Treasury due 1949	3⅛	10,000.00	9,993.63	10,812.
U. S. Treasury due 1954	2¾	16,000.00	16,185.00	16,500.
Wichita Water Company due 1960	5	4,000.00	3,800.00	4,200.
Wilson & Company 1st mort. due 1955	4	2,000.00	1,945.42	2,020.
Youngstown Sheet & Tube due 1961	4	2,000.00	1,935.42	2,070.
Totals		$154,873.52	$152,337.86	$141,250.

Financial Statement Verified.
4/17/39. (J.D.M.)
Approved.

Geo. E. Murphy,
Comptroller.

STATISTICS

Table I.—New Appointments

A. Administrative Departments

Junior Clerk and Stenographer: Katherine J. Mahoney.

Assistant College Editor: Stanley A. Flower, B.S., Massachusetts State College, 1938.

B. Academic Departments

Instructor in Music: Doric Alviani, Mus.B., Boston University, 1937.

Junior Library Assistant: Frances A. Davison, B.S., Syracuse University, 1936.

Instructor in Botany: S. Judson Ewer, B.S., Massachusetts State College, 1928; M.S., University of Illinois, 1930; Ph.D., Rutgers, 1934.

Instructor in Mathematics: Calvin S. Hannum, B.S., Massachusetts State College, 1936; M.S., 1938.

Laboratory Assistant in Physics: Raymond A. Minzner, B.S., Massachusetts State College, 1937.

Assistant Professor of Landscape Architecture: Raymond H. Otto, B.S., Massachusetts State College, 1926; M.L.A., Harvard, 1929.

Professor and Head of Department of Poultry Husbandry: Raymond T. Parkburst, B.S., Massachusetts State College, 1919; M.S. University of Idaho, 1927; Ph.D., University of Edinburgh, 1932.

Instructor in German: Thomas A. Riley, A.B., Bowdoin, 1928; M.A., Yale, 1937.

Technical Assistant in Entomology: Marion E. Smith, B.S., Massachusetts State College, 1935; M.S., 1936; Ph.D., University of Illinois, 1938.

Instructor in Zoölogy: Jay R Traver, B.A., Cornell, 1918; M. A., 1919; Ph.D., 1931.

Instructor in English: H. Leland Varley, A.B., Wesleyan, 1934; M.A., 1935.

Instructor in Agronomy: John M. Zak, B.S., Massachusetts State College, 1936; M.S., 1938.

C. Experiment Station

Laboratory Assistant in Agricultural Economics: Carl J. Bokina, B.S., Massachusetts State College, 1938.

Laboratory Assistant in Agricultural Economics: James D. Lee, B.S., Massachusetts State College, 1938.

Laboratory Assistant in Entomology: William E. Tomlinson, Jr., B.S., Tufts, 1936; M.S., Massachusetts State College, 1938.

D. Short Courses

Instructor in Economics: Richard M. Colwell, B.S., Rhode Island State College, 1935; M.S., 1937.

Table II.—Speakers for the Year

A. Convocation

1937

Dec. 2. President Charles E. Newell, Massachusetts School of Art.
Dec. 9. President Albert N. Jorgensen, Connecticut State College.
Dec. 16. Winter carnival movies.

1938

Jan. 6. Dr. Ch'ao-ting Chi, "The Far Eastern Question."
Jan. 13. Student Forum.
Jan. 20. Professor William G. Sutcliffe, Boston University.
Feb. 10. President Hugh P. Baker, M.S.C.
Feb. 17. Professor James T. Cleland, Amherst College.
Feb. 24. College Band.
Mar. 3. Dr. Ruroy Sibley, "Seeing the Universe."
Mar. 10. Dr. Philip W. Ireland, Harvard University, "The Mediterranean Re-enters World Politics."
Mar. 17. President Grover C. Bowman, President, State Teachers College North Adams.
Mar. 24. Mr. C. William Duncan, Philadelphia Evening Ledger.
Apr. 7. Director Fred J. Sievers, M.S.C.
Apr. 14. Debate—M.S.C. vs. Loyola College.
Apr. 21. Phi Kappa Phi Convocation. Sir Herbert J. C. Grierson, Lord Rector, Edinburgh University.
Apr. 27. Diamond Jubilee Convocation. President Daniel L. Marsh, Boston University.
May 5. Insignia Convocation. Harry D. Brown, M.S.C. '14.
May 12. Burnham Declamation Contest.
May 19. Trustee Convocation. Morris L. Cooke, Consulting Engineer, Philadelphia, Penn.
May 26. Senior Convocation.
Sept. 21. President Hugh P. Baker and Dean William L. Machmer.
Sept. 29. Class meetings.
Oct. 6. Student Singing.
Oct. 13. Scholarship Day. President Remsen B. Ogilby, Trinity College, Hartford, Conn.
Oct. 20. Harold Bennison, Boston, "Why Do Newspapers Print Such Stuff."
Oct. 27. Professor Theodore C. Caldwell, M.S.C., "The European Situation."
Nov. 3. Mr. W. J. Kitchen, Boston.
Nov. 10. Dr. James G. Reardon, Commissioner of Education.
Nov. 17. President Martin F. O'Connor, State Teachers College, Framingham.

B. Sunday Vespers

1937

Sept. 26. Dr. James Gordon Gilkey, South Congregational Church, Springfield.
Oct. 3. Professor Frank A. Waugh, M.S.C.
Oct. 10. Bishop Charles Wesley Burns, Boston.
Oct. 17. Rabbi Milton Steinberg, New York City.
Oct. 24. Professor William Lyon Phelps, New Haven, Conn.
Oct. 31. Rev. Jeffrey Campbell, Boston.
Nov. 7. Mrs. Marguerite H. Bro, Secretary, Congregational Board of Action.
Nov. 14. Mr. D. Brewer Eddy, Boston.
Nov. 21. Dr. Maxwell H. Goldberg, M.S.C.
Dec. 5. Bishop W. Appleton Lawrence, Springfield.
Dec. 12. Dean William L. Machmer, M.S.C.

1938

Jan. 9. Professor S. Ralph Harlow, Smith College.
Jan. 16. Dr. Grady D. Feagan, Arlington, Mass.
Feb. 13. Rabbi Abraham J. Feldman, Hartford, Conn.
Feb. 20. Professor James T. Cleland, Amherst College.
Feb. 27. Professor Hans Kohn, Smith College.
Mar. 6. Dr. James Gordon Gilkey, South Congregational Church, Springfield.
Mar. 13. Rev. T. Lawrason Riggs, Yale University.
Sept. 25. Bishop J. T. Dallas, Concord, N. H.
Oct. 2. Dr. James Gordon Gilkey, South Congregational Church, Springfield.
Oct. 9. Professor David Morton, Amherst College.
Oct. 16. Professor Walter Kotschnig, Smith College.
Oct. 23. Bishop W. Appleton Lawrence, Springfield, Mass.
Oct. 30. Rev. T. Lawrason Riggs, Yale University.
Nov. 6. Dr. Robert Brahmachari, Chicago, Ill.
Nov. 20. President Hugh P. Baker, M.S.C.

Table III.—Attendance

	Registration Nov. 1, 1937			Registration Nov. 1, 1938		
	Men	Women	Total	Men	Women	Total
A. Graduate Students	117	20	137	122	28	150
B. Undergraduate Students						
Senior Class	175	69	244	160	74	234
Junior Class	171	74	245	174	65	239
Sophomore Class	196	70	266	220	104	324
Freshman Class	243	113	356	237	114	351
Special Students	2	7	9	7	2	9
Totals	787	333	1,120	798	359	1,157
C. Stockbridge School						
Second year	108	10	118	108	3	111
First year	154	7	161	190	9	199
Specials	1	1	2	1	—	1
Totals	263	18	281	299	12	311
D. Short Course Enrollment						
Winter School	130	4	134	112	2	114
Summer School	73	68	141	134	88	222
Totals	203	72	275	246	90	336
Grand Totals (excluding duplications)	1,370	443	1,813	1,465	489	1,954

Educational Meetings

Educational Meetings and Conferences

	1937	1938
A.A.U. School for Swimming Officials (5)	—	120
Agricultural Alumni Seminar	175	—
Agricultural Conservation Conference—1937 (1); 1938 (3)	76	55
Barnstable County 4-H Group	6	—
Basketball Conference	—	175
Basketball Tournament Committee	12	—
Berkshire County 4-H Poultry Club	45	38
Christmas Greens Meeting	300	—
County Agricultural Agents	78	—
Cranberry Growers (representatives) (Waltham)	24	—
Cranberry Weed Meeting (Wareham)	125	—
Current Government Problems Conference	148	208
Extension Service Secretaries Conference	—	40
Farm and Home Week	4,500	5,000
Federated Dairy Ass'n. of Mass. (Directors)	33	—
Federated Poultry Ass'n. of Mass. (Directors)	25	—

Florists' School (Waltham)—2 days	264	28
Football Clinic	75	-
4-H Boys' Conservation Camp—1 week	41	-
4-H Canning Clubs (3)	25	-
4-H Club Agents' Conference	—	3
4-H Garden Leaders	—	1
4-H Girls' Conservation Camp—1 week	31	3
4-H Men Leaders' Conference	20	4
4-H Recreation School	—	2
4-H State Camps (Junior Leaders and Adult Leaders)—1 week each	277	26
Fruit Industry Committee	—	1
Fruit Root-Stock Conference	—	2
Fruit Spray Schedule Committee	—	1
Greenhouse Growers' School (Waltham) (3)	—	24
Greenkeepers' Conference (Waltham) (5)	—	25
Hampden County 4-H Canning Leaders	12	-
Hampden County Women Leaders (candy making), 1937 (2); 1938 (2)	54	4
Hampshire County 4-H Canning Group (2)	42	-
Hampshire County 4-H Leaders—1937 (1); 1938 (2)	23	4
Hampshire County 4-H Poultry Group (2)	46	-
Hampshire County Dairymen's Meeting	—	5
Holyoke 4-H Local Leaders	—	2
Home Demonstration Agents' Conference—1937 (3); 1938 (2)	55	1
Home Garden School (Waltham) 1937 (2); 1938 (2)	400	24
Housing Conference	45	-
Inter-faith Parley	—	12
Landscape Architecture Alumni Conference	200	15
Land Use Planning Conference	—	4
Massachusetts Dairy Cattle Breeders (representatives)	22	-
Massachusetts Extension Committee on Relationships 1937 (3); 1938 (3)	24	4
Massachusetts Extension Workers' Conference	130	12
Massachusetts Federation of Garden Clubs School	41	5
Massachusetts Fruit Growers' Advisory Committee	12	-
Massachusetts Soil Conservation Committee—1937 (1); 1938 (6)	20	13
M. S. C. Faculty Women's Extension Group—1937 (2); 1938 (9)	70	13
M. S. C. Women's Advisory Council—1938 (2)	—	3
Massachusetts Vegetable Council	24	-
Middlesex County 4-H Camp—1 week	143	18
Middlesex County 4-H Garden Leaders (Waltham)	65	-
Middlesex County Soil Conservation Committee (Waltham)	9	-
Poultry Breeders School	88	10
Recreational Conference Meetings	1,000	1,20
Ski Clinic	40	-
Soccer Clinic	35	-
Tea Room and Tourists' Home Conference	52	10
Tri County Fruit Meeting	125	15
Trustees of M. S. C. and County Aid to Agriculture	32	-
Vegetable Gardening Department Alumni	—	3
Western Massachusetts Basketball Conference	160	-
Winter Sports Section of Recreation Conference	—	13
Women's Advisory Council, Extension Service	100	-
W. P. A. Clothing Supervisors	110	-
Total	9,459	10,04

EDUCATIONAL EXHIBITIONS, DEMONSTRATIONS AND CONTESTS

	1937	1938
College Livestock Judging Teams	42	20
Connecticut Valley Youth Day	600	775
Dad's Day	500	850
Dedication of Chimes	400	—
Field Day (Waltham)	1,132	809
4-H All Stars—1937 (2); 1938 (2)	85	115
4-H Clubs—1937 (10); 1938 (15)	106	229
4-H Dairy Club	70	—
4-H Home Economics Contests	200	150
4-H Judging Contests (Waltham and M. S. C.)	150	—
4-H Service Clubs—1937 (5); 1938 (2)	280	110
4-H State Camp Reunion	35	35
Hampshire County 4-H Achievement Day	60	350
Hampshire County 4-H Alumni	—	50
Hampshire County 4-H Council	—	25
Hampshire County 4-H Prep. Meeting	—	100
Hampshire County May Festival	1,200	1,000
High School Day	600	375
Horse Show	500	—
Horticultural Show	23,751	—
Interscholastic Judging Contest	250	200
Middlesex County 4-H Alumni Group (2)	—	101
Middlesex County 4-H Delegates	77	93
Middlesex County 4-H Vegetable Judging Team (Waltham)	16	—
Mother's Day	102	200
Norfolk County 4-H Delegates	23	24
Recreational Conference Exhibits	3,000	3,000
Small High School Basketball Tournament	17,878	16,489
Small High School Relays	500	500
Small High School Track Meet	400	350
Vegetable Disease Demonstration (Waltham)	12	—
Vocational Agricultural Judging Contest (Waltham)	70	—
Vocational Agricultural Judging Elimination Contest	90	120
Total	52,129	26,070

CAMPUS MEETINGS SUPERVISED BY OFF-CAMPUS AGENCIES

	1937	1938
Adult Alien Education Conference (1 week)	30	—
American Publicity Association—N. E. Section	37	—
Amherst Camera Club—1937 (5); 1938 (8)	211	474
Amherst Cub Scouts	30	—
Amherst District Scout Masters—1937 (1)	30	—
Amherst Nature Club—1937 (6); 1938 (5)	277	199
Amherst Women's Club, Homemaking Section	35	—
American Chemical Society—Conn. Valley Section	55	—
American Country Life Association—N. E. Section	62	—
American Society of Agronomy—N. E. Section	25	—
Asso. of Governing Boards of State Univ. & Allied Institutions	45	—
Asso. Women of Mass. Farm Bureau (Waltham)	16	—
Boston Market Gardeners' Association (Waltham)	—	86
Boy Scout Troup 506	—	30
Boy Scout Troup 506 Committee (2)	—	12
Braintree Garden Club (Waltham)	—	17
Brattleboro 4-H Club	5	—
Cape Cod Cranberry Growers' Association (Wareham) 1937 (1); 1938 (2)	300	600
Clark School Group	—	15
Clinton Women's Club, Garden Committee (Waltham)	—	11
Cochituate Garden Club (Waltham)	22	—

Connecticut Poultry Tour	70	-
Connecticut Valley Home Economics Association	60	-
Counter Freezer Association	—	5
Danvers Garden Club (Waltham)	14	-
Eastern States Cooperative League—1937 (2 weeks); 1938 (2 weeks)	—	4
Easthampton Christian Endeavor Society	—	4
East Walpole Garden Club (Waltham)	15	-
Entomologists' Society	—	8
Farm Chemurgic Council	—	3
Farm Security Conference	—	6
Flower Show of Holyoke and Northampton Florists and Gardeners' Club	—	2,85
Foxboro Garden Club (Waltham)	—	1
Franklin County Nurses' Association	12	-
Franklin-Hampshire Nurses Group	—	4
Franklin-Hampshire Selectmen's Association	85	-
Future Farmers of America	—	15
Gloucester Garden Club (Waltham)	20	-
Hamilton-Wenham Garden Club (Waltham)	—	2
Hampshire County Consumers' Council	100	-
Hampshire County Pomona Grange Field Day	350	-
Hampshire County Youth Council (4)	—	11
Hampshire-Franklin Boy Scout Camp Training Course	—	4
Hampshire-Franklin Boy Scout Council—1937 (1); 1938 (3)	58	3
Hampshire-Franklin Boy Scout Council Dinner	300	-
Hampshire-Franklin Health and Safety Institute	85	-
Hampshire-Franklin Holstein Club	—	2
Holyoke and Northampton Florists and Garden Club	25	6
Junior League Garden Club of Boston (Waltham)	—	4
Lawrence Garden Club (Waltham)	12	2
Lincoln Garden Club (Waltham)	12	-
Lowell Textile School Group	—	3
Lunenburg Garden Club (Waltham)	—	1
Massachusetts A. C. P. Committee	6	-
Massachusetts Archery Association	—	15
Massachusetts Collectors' and Treasurers' Association	147	-
Massachusetts Department of Agriculture Advisory Board	—	
Massachusetts Dietetic Association	46	-
Massachusetts Farm Bureau Directors (Waltham & Amherst)	12	-
Massachusetts Forest and Park Ass'n, Town Forest Committee	—	1
Massachusetts Greenkeepers' Association (Waltham)	—	5
Massachusetts Jersey Cattle Club	40	-
Massachusetts Nursery Association (Waltham)	—	2
Massachusetts Parent-Teacher Association (summer meeting)	200	-
Massachusetts Savings Bank (Women)	60	-
Massachusetts Secondary School Principals' Conference, etc.	700	80
Massachusetts State Grange Day	300	35
Massachusetts Veterinary Association	—	3
Merry Weeders' Garden Club (Waltham)	21	-
National Gardeners' Association—Boston Branch (Waltham)	20	1
National Grange Rally	400	-
Needham Garden Club (Waltham) (2)	33	-
Needham Men's Garden Club (Waltham)	—	1
New England Carnation Growers' Association (Waltham)	21	-
New England Forest Association (Waltham) (6)	—	21
New England Greenkeepers' Association (Waltham)	49	-
New England Greenkeepers' Association, Directors (Waltham) (2)	—	2

Jew England Greenkeepers' Association, Mass Section—1937 (2); 1938 Waltham	58	51
Jew England Hotel Association	34	—
Jew England Model League of Nations	—	300
Jew England Modern Language Association	200	—
Jew England Plant Pathologists (Waltham)	20	—
Jew England Power Co. Rural Electrification Conference (Waltham)	14	—
Jewton Garden Club (Waltham)	20	—
Jewtonville Garden Club (Waltham)	—	21
Jew York Poultry Tour	—	35
Jorthampton Production Credit Association	—	190
Jorthampton Stamp Club (2)	—	52
Jortheastern Unit of Soc. of A. F. and O. H.	—	250
'ilgrim Fellowship Camp (1 week)	—	238
'lymouth County Vegetable Growers (Waltham)	—	35
Jural Resettlement Conference (2)	19	—
'even Hills Garden Club (Waltham)	16	—
'ituate Garden Club (Waltham)	—	13
ea Scouts	—	15
kiing Advisory Committee	—	9
ons of Colonial Wars (Waltham)	25	—
tony Brae Garden Club (Waltham)	15	—
tow Garden Club (Waltham)	18	—
upervisors of Adult Alien Education	50	—
Jnited Young People's Forum of Northampton	—	50
J. S. F. S. Scalers	—	25
'egetable Variety and Seedsmen's Conference (Waltham and Amherst)	70	—
'ocational Agricultural Teachers' Conference	—	90
Valtham Garden Club (Waltham)	—	18
Vestboro Garden Club (Waltham)	16	—
Vestern Mass. Board of Approved Football Officials	—	35
Vestern Massachusetts Winter Sports Council	25	—
Vest Newbury Garden Club (Waltham)	15	—
Vest Newton Education Club, Garden Section (Waltham)	13	10
Vinchendon Garden Club (Waltham)	—	10
Vinchester Garden Club (Waltham)	20	—
Vinthrop Garden Club (Waltham)	—	17
Veymouth Garden Club (Waltham)	20	—
V. P. A. Recreation Training Conference	150	—
Voburn Garden Club (Waltham)	—	18
'ale University Forestry Group	15	—
'oung Peoples' Forum of Northampton	35	—
Y. W. C. A. Conference	15	—
Total	5,441	8,475
Grand Total	67,029	44,594

Table IV.—Statistics of Freshmen Entering in September, 1938

A. Home Addresses of Students (Classified by Towns and Cities)

Abington	2	Freetown	1	Norwood	1
Agawam	3	Georgetown	1	Orleans	1
Albion, R. I.	1	Great Barrington	2	Oxford	1
Amherst	13	Greenfield	8	Pelham	2
Arlington	3	Hadley	2	Pembroke	1
Ashfield	2	Hancock	1	Pepperell	3
Ashland	1	Harrison, N. Y.	1	Pittsburgh, Pa	1
Athol	3	Hatfield	2	Pittsfield	14
Attleboro	2	Haverhill	1	Plainville	1
Auburn	2	Holliston	1	Putney, Vt.	1
Bar Harbor, Me.	1	Holyoke	21	Revere	1
Barre	1	Hopkinton	1	Richmond	1
Becket	1	Hudson	4	Rowley	1
Bedford	1	Huntington, N. Y.	1	Salem	1
Belchertown	2	Jamaica, N. Y.	1	Sandwich	1
Bellingham	1	Lanesboro	1	Saugus	1
Bellows Falls, Vt.	1	Lawrence	4	Savannah, N. Y.	1
Belmont	1	Lenox	2	Sheridan, Pa.	1
Beverly	1	Leominster	1	Shrewsbury	1
Boston	37	Leverett	1	Somerville	4
Bourne	1	Lexington	1	Southbridge	1
Brattleboro, Vt.	1	Longmeadow	2	South Hadley	3
Briarcliff Manor, N. Y.	1	Lunenburg	3	Southwick	2
Bridgeport, Conn.	1	Lynn	8	Springfield	10
Bridgewater	1	Malden	5	Sterling	1
Brimfield	1	Manchester	1	Stockbridge	1
Brockton	2	Marblehead	1	Stoughton	1
Brookfield	2	Marlboro	1	Sturbridge	1
Brookline	2	Maynard	1	Sunderland	1
Brooklyn, N. Y.	1	Medford	2	Swampscott	1
Canton	1	Medway	1	Taunton	2
Carlisle	1	Merrimac	1	Templeton	1
Chelmsford	2	Methuen	1	Tisbury	1
Chelsea	6	Middleboro	3	Towanda, Pa.	1
Chicopee	3	Milford	1	Upton	1
Cranford, N. J.	1	Montague	2	Walpole	1
Dalton	2	Natick	1	Waltham	1
Danvers	2	Needham	1	Ware	5
Dartmouth	1	New Bedford	1	Watertown	4
Deerfield	3	Newburyport	2	Wayland	1
East Bridgewater	1	Newton	1	Westboro	1
Easthampton	2	New Haven, Conn.	1	Westfield	4
East Longmeadow	1	New York, N. Y.	1	West Springfield	1
Essex, Canada	1	Norfolk	1	Weymouth	2
Fairhaven	1	North Adams	1	Whitman	1
Falmouth	1	Northampton	13	Williamstown	1
Fitchbhrg	2	North Andover	1	Wilmington	1
Forest Hills, N. Y.	1	Northboro	1	Winthrop	2
Foxboro	1	North East, Pa.	1	Worcester	17

B. Home Addresses (Classified by States and Countries)

	Number	Percent		Number	Percent
Canada	1	.28	New York	8	2.28
Connecticut	2	.57	Pennsylvania	4	1.14
Maine	1	.28	Rhode Island	1	.28
Massachusetts	330	94.03	Vermont	3	.86
New Jersey	1	.28		351	100.00

C. Home Addresses (Classified by Counties of Massachusetts)

	Number	Percent		Number	Percent
Barnstable	4	1.21	Hampshire	44	13.33
Berkshire	27	8.19	Middlesex	41	12.42
Bristol	8	2.42	Norfolk	14	4.24
Dukes	1	.30	Plymouth	11	3.33
Essex	28	8.49	Suffolk	46	13.94
Franklin	17	5.15	Worcester	41	12.42
Hampden	48	14.55		330	100.00

D. Nativity of Parents

	Number	Percent
Neither parent foreign born	228	64.96
Both parents foreign born	86	24.50
Father (only) foreign born	21	5.98
Mother (only) foreign born	16	4.56
	351	100.00

E. Education of Father

	Number	Percent
Common School	126	35.90
High School	118	33.62
Business College	22	6.26
College or University	69	19.66
No Statistics	16	4.56
	351	100.00

F. Occupation of Father

	Number	Percent
Agriculture and Horticulture	45	12.82
Artisans	64	18.23
Business	104	29.63
Professional	42	11.97
Miscellaneous	56	15.96
Retired	6	1.71
Deceased	27	7.69
No Statistics	6	1.71
Unemployed	1	2.28
	351	100.00

G. Intended Vocation of Students

	Men	Women	Total	Percent
1. *Farming,* including Market Gardening, Nursery business, Florist's business, Fruit growing, Management of Estates, General farming, Poultry Husbandry, Livestock breeding	20	1	21	5.99
2. *Agricultural Business,* including sales of agricultural products and other capacities such as the fertilizer industry, the feed industry, etc.	2	—	2	.57
3. *Science,* including Chemistry, Botany, Entomology, Bacteriology, etc., in such capacities as research experts, laboratory assistants, technologists	73	29	102	29.06
4. *Landscape Architects,* Agricultural Engineers, Foresters	9	1	10	2.85
5. *Teachers,* including College Professors, High School Instructors, Specialists in Extension Education, etc.	8	9	17	4.84
6. *Professional Practitioners,* including Physicians, Surgeons, Dentists, Lawyers, Veterinarians, Ministers, etc.	45	6	51	14.53
7. *Civil Engineers*	5	—	5	1.42
8. *Industrial Enterprises,* including Manufacturing, Merchandising, Advertising, Banking, Accounting, Real Estate, Insurance, etc.	4	—	4	1.14
9. Authors, Artists, Journalists, etc.	4	2	6	1.71
10. Home Economics	—	29	29	8.26
11. Social Service	10	16	26	7.41
12. Public Service, including military service, public administration, etc.	2	—	2	.57
13. Undecided	53	23	76	21.65
	235	116	351	100.00

H. Farm Experience

	Men	Women	Total	Percent
Brought up on a farm	30	16	46	13.11
Not brought up on a farm and having no or practically no farm experience	139	80	219	62.39
Not brought up on a farm but having had some farm experience	60	17	77	21.94
No statistics	6	3	9	2.56
	235	116	351	100.00

I. Miscellaneous Statistics

Average age (years)	18.54

Bulletin

MASSACHUSETTS STATE COLLEGE

SUMMER SCHOOL

1939

Bulletin
MASSACHUSETTS STATE COLLEGE

Summer School Number

For the Session July 3 to August 12, 1939

Summer school students enjoy classes out of doors.

Amherst, Massachusetts

Volume XXXI **March, 1939** **Number 3**

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SUMMER SCHOOL STAFF

OFFICERS OF ADMINISTRATION

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FRED J. SIEVERS, M.S. — Experiment Station Office — 109 Fearing St.
Director of Graduate School

ROBERT D. HAWLEY, B.S., M.B.A. — South College — 10 Pleasant Court
Secretary

FRED C. KENNEY — South College — 50 Mount Pleasant
Treasurer

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Librarian

MRS. MARY L. BROUGHTON — Abigail Adams House
Matron of Women's Dormitory

FACULTY

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Assistant Professor of History

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*First address is business, second is residence.

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Professor of Nature Education; Director of Nature Guide School at Pine Tree Camp, Plymouth, Mass.

WINTHROP S. WELLES, M.Ed. — Stockbridge Hall — 135 Lincoln Ave.
Professor of Education and Head of Department

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Principal of Deerfield High School, South Deerfield, Mass.

RUSSELL NOYES, Ph.D. — The Chapel
Assistant Professor of English, Indiana University, Bloomington, Indiana

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*First address is business, second is residence.

NOTICE

The College reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue, either as to courses, personnel, fees, or facilities.

GENERAL ANNOUNCEMENT

The thirty-first session of the summer school at Massachusetts State College will begin July 3 and continue through August 11.

Admission — There are no formal examinations for admission to the summer session. Students, both men and women, will be admitted to such courses as their preparation allows.

Purposes — The summer school program is arranged for:

1. School superintendents, principals, and teachers connected with senior and junior high schools and elementary schools, who seek advanced instruction either with or without relation to an academic degree.
2. Teachers who desire to pursue courses that will better prepare them for their work.
3. College students who desire to further their regular college work.
4. Any adult person who finds courses suited to his preparation and needs.

Full Session Courses

Registration — Registration will be held in Memorial Hall from 9 A. M. to 4:30 P. M. on Monday, July 3. Late registrations should be made at the Short Course Office, South College. (Telephone Amherst 900 — Connecting all departments).

Classes will begin promptly at 8 A. M. Wednesday, July 5 and will be held as announced in the description of courses until Wednesday, August 9, inclusive. Examinations will be held on Thursday and Friday, August 10 and 11.

Classes will be held on Saturday, July 8, to make up Monday classes missed due to registration, and on Saturday, July 15, for the holiday, July 4.

Change of Program — Notice of any proposed addition or cancellation of courses after registration must be reported at once in person at the office of the Director of the Summer Session. Students will be allowed, after securing the consent of the Director, to make such additions or cancellations up to and including July 10. After that date they will be permitted to make no changes whatever. A student attending any course is required to do the full work assigned to the class, unless registered as an auditor.

Credits — All courses are measured in terms of semester credit units. The number of college credits which may be earned in one summer cannot exceed six semester units.

Grades and Passing Mark — All undergraduate grades are given in percentages with 60 as a required minimum for passing a course successfully.

Credit Courses Offered

Fundamentals of Nutrition
Genetics and Eugenics
General Chemistry I
General Chemistry II
Introduction to Political Science
Problems in State and Local Government
Professional Possessions Massachusetts Teachers Need
Teaching Problems, Principles and Practices
History of Education
Educational Research and Statistics
Problems in Vocational Teaching
Principles of Vocational Education
American Literature Since the Civil War
The English Novel in the Nineteenth Century
Contemporary Poetry
Preparation for College Work in English
Colonial History of Massachusetts
Government of the United States
History of the United States Since 1865
International Relations Since the World War
Food Preservation
Recreation Activities
Educational Psychology
Mental Hygiene

GRADUATE SCHOOL

Registration of Graduate Students — (Summer Session.) Graduate students not candidates for an advanced degree at Massachusetts State College must submit evidence of their graduation, but are not required to file transcripts of their past training. All such should consult the Director of the Graduate School and secure his consent before registering for any courses. Such students may obtain, upon request to the Director, an official statement of the work completed in the Summer Session.

Graduate students desiring credit toward an advanced degree at the Massachusetts State College must meet the requirements of the Graduate School at the time of their registration, as follows:

Admission — Admission to the Graduate School will be granted:

1. To graduates of the Massachusetts State College.

2. To graduates of other institutions of good standing who have received a bachelor's degree substantially equivalent to that conferred by this college.

Admission to the Graduate School does not necessarily admit to candidacy for an advanced degree, students holding a bachelor's degree being in some cases permitted to take graduate work without becoming candidates for higher degrees.

Applications for membership in the Graduate School should be presented to the Director of the Summer Session accompanied by an official transcript of the applicant's undergraduate record, and a record of any graduate work he may have had, and by a statement whether the applicant desires to work for a degree.

Registration is required of all students taking graduate courses, the registration card being obtained through the Director of the Summer Session.

Fees — For graduate students the usual Summer School expenses of tuition and special fees will be collected.

Graduate Studies — Some graduate work is available during each semester of the college year. In the summer session, however, special arrangements must be made with the head of the department in which the student plans to take work, except in the case of courses offered in this circular.

Instructors should note that, although the passing grade for graduate students is the same as for undergraduates, a higher quality of work is required.

During the present summer session these courses may be taken for credit towards an advanced degree.

Fundamentals of Nutrition
Genetics and Eugenics
Problems in State and Local Government
Professional Possessions Massachusetts Teachers Need
Teaching Problems, Principles and Practices
History of Education
Educational Research and Statistics
Problems in Vocational Teaching
Principles of Vocational Education
American Literature Since the Civil War
The English Novel in the Nineteenth Century
Contemporary Poetry
Colonial History of Massachusetts
Government of the United States
History of the United States Since 1865
International Relations Since the World War
Educational Psychology
Mental Hygiene

EXPENSES

There is a tuition charge of $3.50 for each semester credit. All fees must be paid to the College Treasurer, within one week from the opening date.

A special recreation feee of $2.50 must be paid at time of registration by each student registering in the six weeks session for credit courses. There are no exceptions to this rule, for commuting students nor other non-residents.

Total expense for the six weeks summer session will probably vary from $80.00 to $100.00 as itemized below.

	Low	*High*
Tuition (3-6 semester hours)	$10.50	$21.00
Recreation Fee	2.50	2.50
Board	36.00	42.00
Room	18.00	18.00
Books	5.00	10.00
Laboratory Supplies	2.00	4.00
Laundry	6.00	6.00
	$80.00	$103.50

Rooms (Women) — The women's dormitory is available for women students. There are thirty double and thirty-eight single rooms. A uniform rate of $3.00 per week will be charged each student. *Each one will be required to supply her own blankets, sheets, pillow cases, etc.* Convenient arrangements for laundry work may be made in Amherst. *Students taking rooms in the dormitory must conform to dormitory regulations.* Observance of these regulations is one of the conditions under which the rooms are rented and failure to comply with the regulations will mean a surrender of the room and a forfeiture of the amount paid. A student whose conduct is not satisfactory may be asked to withdraw from the dormitory.

All requests for dormitory rooms must be made to the Treasurer of the college. A deposit of $3.00 is required in order to secure a reservation in the dormitory. Students will be notified by the Treasurer, upon receipt of the fees, as to the location of the room. In case any change is desired, the request should be made immediately. Deposits will not be refunded after the beginning of the summer session. The deposit is applied to total payment for the room at registration.

Rooms (Men) — The men's dormitory, Thatcher Hall, with accommodations for one hundred and fifty students is available for summer school men. The same procedure should be followed in reserving rooms and paying initial fees as explained in the previous paragraph. Bed linen and blankets must be furnished by each student. The rate is $3.00 per week.

There is also an ample supply of furnished rooms in private homes convenient to the campus at moderate rates. A list of desirable locations will be available at time of registration.

Board — The college maintains a cafeteria on the self-service plan in Draper Hall, on the college grounds. Board may be had at from $6.50 to $7.00 a week. Good boarding places can also be secured outside of the college if desired.

The College reserves the right to close the cafeteria by July 31, unless there are at least twenty-five students in regular attendance. Local restaurants will be available for the last two weeks if such action is made necessary.

RECREATION

The Summer Session offers many advantages. Amherst, a quiet college town located in the beautiful Connecticut Valley and rich in historical lore, beckons the summer visitor. The living conditions are excellent and especially desirable for students who wish to spend a part of the summer in study and restful surroundings.

The social life of the Summer School is attractive. There are many interesting places—groves, brooks, woods, near Amherst which are easily accessible, especially for those with cars.

Several picnic parties to such scenic spots as Mount Holyoke, Whately Glen and Sky Pasture in the Pelham Hills are arranged each summer and have come to be one of the most pleasurable parts of the recreation program.

Golf — Amherst has a fine nine-hole course and privileges are extended to summer school students at a special rate for the six weeks.

Swimming — The College swimming pool, located in the Physical Education Building, will be available from July 3 if use by students warrants. Recreation fee includes this privilege without further cost to the student.

Tennis — There are tennis courts available for summer school students, including six new courts recently built.

Badminton, archery, softball and horseshoe pitching are other sports which may be enjoyed.

When desired, all equipment for these sports will be furnished except for such items as tennis balls or badminton "shuttles."

Informals — At regular intervals informal social gatherings are held in Memorial Hall with dancing, bridge, bowling, table tennis and shuffleboard.

Recreation for the Summer Session will be under the direction of Assistant Professor Llewellyn L. Derby of the Department of Physical Education.

CAMPUS FACILITIES

The College — The College campus occupies an attractive site three-quarters of a mile north of Amherst center. The College has over 700 acres of land, most of which is in a high state of cultivation, demonstrating the better practices of many of the leading agricultural industries of Massachusetts. There is a large range of greenhouses of the most modern and approved type; there is a modern dairy barn with a large herd of pure-bred cattle; there are good horses, pure-bred swine, sheep, and poultry; there are fields of corn, potatoes, clover, and grass in season; orchards of apple, peach, plum, and pear trees; tracts of good forest land, nurseries, and market gardens. There are also considerable tracts devoted to experiments, many of which are of unusual interest. Then there are well-equipped departments of botany, entomology, and chemistry, dealing in the most thorough manner with these special sciences. These advantages of plant, equipment, and teaching staff are made available to Summer School students.

Libraries — The College Library contains over 100,000 bound volumes and a very large collection of pamphlets, which are of great practical value, being monographs on the technical subjects studied in the College. These pamphlets include particularly the publications of the United States Department of Agriculture and those of the State Experiment Stations of other Agricultural colleges in this country and abroad. Among the bound volumes, works on agriculture, horticulture, botany, entomology and the various sciences, connected especially with agriculture predom-

DRAPER HALL ACROSS THE COLLEGE POND

inate, but literature, history, economics, religion, sociology and art are also well represented. More than five hundred periodicals, covering technical and general subjects, are regularly taken and both the current numbers and the back files are readily accessible.

The Library is open for readers from 8:00 A. M. to 5:00 P. M. during the summer.

There are numerous department libraries, such as those in Stockbridge Hall, and French, Marshall, and Clark Halls, where many valuable publications may be used.

The main Library has recently moved into its new building, the Goodell Library, which is the result of thirty years of effort and planning. This building offers unusual conveniences for study and research, with many separate study desks, and space to keep materials for thesis work together. For those interested in library facilities in their home communities, the Goodell Library building is worthy of study, for its practical or functional arrangement, unusual day and night lighting, and other novel features which make it a step forward in American library design. The librarian will be very glad at any time to discuss these problems with those who may be interested.

The town of Amherst in its Jones Memorial Library offers further additional advantages of unusual interest.

College Bookshop and Soda Fountain — The College maintains a bookstore providing all textbooks used in courses. This is located in North College. A full line of paper, notebooks, and writing materials is carried. There is also a well-equipped soda fountain, and light lunches, ice cream, and smokers' supplies are on sale. Since the college is situated about one mile north of the town and away from the shopping centre, it is hoped this convenient arrangement will aid students in supplying their various needs.

SPECIAL PROGRAMS DURING SUMMER SESSION

July 2- 9 Pilgrim Fellowship Camp.
July 6-13 4-H Conservation Camp.
July 14-21 4-H Junior Leaders Camp
July 21-28 4-H Adult Leaders Camp
July 24-28 Farm and Home Week.
July 30-Aug. 12 Institute of Cooperation.

The Annual Farm and Home Week held under the direction of the College Extension Service in July brings hundreds of people to the campus for the four-day program. This year the dates are July 24 to July 28 inclusive. A fine program of lectures, with many speakers of national prominence, gives summer school students an unusual opportunity during this session. No extra fees. Plan to have your friends visit the college at that time.

SUMMER SCHOOL COURSES

BIOLOGY

Fundamentals of Nutrition

This course is designed to give the student an understanding of the digestion, assimilation, and utilization of foods by the human body. The materials included in the course should be of value to teachers of physiology, hygiene, foods work and physical education, and to the student who desires a knowledge of how the body functions.

The course will include discussions of the mechanics of digestion, the sources and functions of enzymes, the functions of proteins, carbohydrates, fats, minerals and vitamins in the body, energy metabolism, and the functions of the endocrine glands primarily concerned with nutrition. The relation of the fundamental principles of nutrition to food selection and health habits, and to the evaluating of fads in diets will be considered.

5 class hours a week. 2 semester credits.
9:00 — 9:50, M. T. W. Th. F.
Room 111, Stockbridge Hall. Mrs. Gladys Cook

Genetics and Eugenics

This course deals with the general problems concerned in human reproduction and inheritance. The main topics studied will consist of the physiology of reproduction, the physical basis of inheritance, and the mode of transmission of human characteristics. Consideration will also be given to such questions as the causes of variation, the relative importance of genetic and environmental influences, the mechanism of sex determination, as well as population trends, sterilization, and kindred eugenic problems.

5 class hours a week. 2 semester credits.
9:00 — 9:50, M. T. W. Th. F.
Room 102, Stockbridge Hall. Professor Rice

CHEMISTRY

General Chemistry I.

A study of the fundamental chemical laws and theories. Topics included in the course are: atomic theory, periodic system, atomic and molecular weights, simple formulae, chemical equilibrium, atomic structure and valence. The descriptive chemistry of a few of the common elements will be included. The laboratory work is the central feature of the course, and is supplemented by the lectures. The object of the course is to give the student a scientific training as well as to prepare him for advanced courses. This course is the equivalent of Chemistry I, and is open to any student qualified to work at the college level. It also provides an opportunity for teachers or others who wish to review the subject.

5 class hours and 5 2-hour laboratory periods a week. 3 semester credits.
9:00-9:50; 10:00-11:50 M. T. W. Th. F.
Lect. Room 28; Lab. Room 12, Goessmann Laboratory Mr. Parrott

General Chemistry II.

A course in General Chemistry for students who have had General Chemistry I, or the equivalent of a semester of college chemistry. The lectures will include discussions of chemical equilibria, oxidation and reduction, electrolytic and galvanic cells,

complex compounds and valence. The descriptive chemistry of some of the elements will be studied systematically according to the groups in the Periodic Table. The Laboratory work will include experiments on ionic equilibria, complex ions, oxidation and reduction, and some preparations of a synthetic nature such as the preparation of pure potassium nitrate from potassium chloride, sodium carbonate by the Solvay process, sodium thiosulfate and potassium permanganate.

5 class hours and 5 2-hour laboratory periods a week. 3 semester credits.
9:00-9:50; 10:00-11:50 M. T. W. Th. F.
Lect. Room 26; Lab. Room 12, Goessmann Laboratory
Assistant Professor Fessenden

ECONOMICS

Introduction to Political Science

A course designed to introduce the student to the subject matter of Political Science, envisaged as that branch of the Social Sciences which is concerned with the power relations of society and with the general patterns of dominance, subordination, and cooperation in the political framework.

Subjects treated include: — the nature and methods of Political Science; the origin, evolution, and theory of the State; forms of government; ends and purposes of government — general views and theories of individualism and capitalism, socialism and communism, fascism; sovereignty; civil and political rights; constitutions and constitution-making; law; public administration; public opinion and political parties.

This course is designed to meet the needs of not only undergraduate and graduate students, but also of teachers and those adults who may be interested in studying the theories and problems of modern government.

5 class hours a week. 2 semester credits.
11:00-11:50 M. T. W. Th. F.
Room D, Old Chapel Assistant Professor Rohr

Problems in State and Local Government

A survey of the governmental structure and functions of the American State and its local governments — county, city, town, and village, and a careful analysis of existing conditions. The functional approach is used with emphasis upon administrative problems arising from such functions as: — education, charities and corrections, finance, public works, civil service, police, taxation, and planning.

May be taken with profit by undergraduates who have taken the course in American National Government, by graduate students interested in particular local problems, by teachers of social science, and by others who are interested in local governmental trends.

5 class hours a week 2 semester credits.
8:00-8:50 M. T. W. Th. F.
Room D, Old Chapel Assistant Professor Rohr

EDUCATION

Professional Possessions Massachusetts Teachers Need

By what working philosophy is your teaching guided? What are your legal protections and privileges in all your school relations? What is the most rational sequence of the outcomes of teaching you try to produce? The dollars in your pay envelope—where do they come from and how? If you want to stay in public education, what other types of work are there in this state beside the one you are in? How seriously shall word from the School Committee be taken?

A valuable professional service can be rendered to teachers by discussing with them information regarding details of the educational system under which they work, a rational philosophy of education, legal relations of schools and teachers, ethics in school relations, advancement, etc., so that questions such as those above are not troublesome. The sense of security and self-confidence are valuable assets to a teacher and her school.

5 class hours a week. 2 semester credits.
9:00-9:50 M. T. W. Th. F.
Room 113, Stockbridge Hall Professor Welles

Teaching Problems, Principles and Practices

An integrated study of some of the concrete problems of 1939 sent in on request by teachers of Massachusetts. These problems cover a variety of types faced at some time by every teacher who cares. We propose to examine problems for important and special features that may dictate procedure in solution; encourage legitimate imagination in laying this out; call into service a sound teaching principle to justify procedure, and finally settle upon the steps that compose the method to be followed. The course becomes then, for teachers of experience, practice in case analysis, selection of basic principles, and discussion of methods of procedure. For prospective teachers it is an introduction to the professional study of their work; for all, participation in informal group discussion in an effort to take guessing out of the work of teachers.

5 class hours a week. 2 semester credits.
11:00-11:50 M. T. W. Th. F.
Room 113, Stockbridge Hall Professor Welles

History of Education

This course deals with the great educational movements of different ages from the standpoint of evaluation and critical interpretation in the light of modern practice. An attempt will be made to show the interdependence of great social, religious, political and educational movements. The knowledge of this history is assuming greater importance for all teachers in the minds of educational supervisors.

5 class hours a week. 2 semester credits.
10:00-10:50 M. T. W. Th. F.
Room 113, Stockbridge Hall Mr. Battey

Educational Research and Statistics

The principles and methods of research with special emphasis upon the techniques used in Education and Psychology. Statistics are studied chiefly from the standpoint of reporting and understanding the results of research. Required of students who anticipate completion of a thesis in the current year.

5 class hours a week. 2 semester credits.
8:00-8:50 M. T. W. Th. F.
Room 113, Stockbridge Hall Mr. Battey

Problems in Vocational Teaching

For employed teachers and directors of vocational agriculture. Prospective candidates may be admitted by special arrangement. The course deals with problems which grow out of the experiences of Massachusetts teachers of vocational agriculture; methods and technique of teaching agriculture. Visits are made to schools and to pupils on farms. Constructive assignments bearing upon the individual experiences and prospects of the members of the class are merged with the campaigns under way

for better teaching in agricultural schools. Regularly designated as Education 103.

It is desirable that, by previous correspondence, a plan may be developed with reference to individual problems and the instructor will recommend some definite data to be secured, relating to the problem, before the summer school opens.

10 class hours a week. 3 semester credits.
8:00 — 9:50, M. T. W. Th. F.
Room 317, Stockbridge Hall Mr. Heald *

Principles of Vocational Education

A study of the laws, rulings and policies in Federal and State supported vocational education in the United States. The philosophy and experiences leading to the legislation and the evolution of a well defined body of practice especially in Massachusetts since 1906. The types of work involved, the occupations represented, the administrative and supervisory problems, standards set, approval factors, machinery necessary and dangers to be avoided. Day schools, part-time and continuation schools, evening schools. Relation to other secondary education. While leaning toward the agricultural field, this course avoids the specific phase treated in the "Methods" courses. Mr. R. O. Small, State Director of Vocational Education, and Mr. John G. Glavin, Supervisor of Agricultural Education, usually assist in this course. Brief correspondence in advance addressed to the instructor in charge will enable the student to secure maximum values from the course. Regularly designated as Education 104.

10 class hours a week. 3 semester credits.
10:00 — 10:50, M. F.; 10:00 — 11:50 T. W. Th., 2 hours by arrangement.
Room 317, Stockbridge Hall. Mr. Heald *

Note: Education 103 and 104 meet the minimum requirements in Vocational Teacher Training.

*Supervisor of Teacher Training for Agricultural Schools representing the State Department of Education.

ENGLISH

American Literature Since the Civil War

A chapter in the literature of America from the Civil War to the present, including such writers as Emily Dickinson, Mark Twain, Howells, Lanier, Moody, Henry James, Frost, Eugene O'Neill, Sinclair Lewis, and other moderns. The course is supplementary to that given in the summer of 1938.

5 class hours a week. 2 semester credits.
8:00-8:50 M. T. W. Th. F.
Room B, Old Chapel Dr. Noyes

The English Novel in the Nineteenth Century

A study of prose fiction based upon the reading and discussion of the master English novelists of the nineteenth century. Writers included are Jane Austen, Scott, Thackeray, Dickens, George Eliot, Meredith, and Hardy.

5 class hours a week. 2 semester credits.
10:00-10:50 M. T. W. Th. F.
Room B, Old Chapel Dr. Noyes

Contemporary Poetry

A study of the more significant figures in British and American poetry since 1914. Earlier poets will be considered briefly for purposes of background.

5 class hours a week. 2 semester credits.
9:00-9:50 M. T. W. Th. F.
Room B, Old Chapel Mr. DuBois

Preparation for College Work in English

A consideration of objectives and methods in the presentation of college preparatory English. The course is designed to help secondary school teachers direct their work in composition and literature toward a more effective fulfillment of college standards. The class will be conducted as a discussion group.

5 class hours a week. 2 semester credits.
11:00-11:50 M. T. W. Th. F.
Room B, Old Chapel Mr. DuBois

HISTORY

Colonial History of Massachusetts

The course is designed to meet the interest in local history. It will attempt to combine with Massachusetts history an understanding of general colonial development. Emphasis will be placed on the way of life and ideals distinctive to this region. Topics for study include: English background of colonization; settlement and westward expansion; Puritanism; conditions of life in the eighteenth century; relations with England.

5 class hours a week. 2 semester credits.
10:00-10:50 M. T. W. Th. F.
Room C, Old Chapel Assistant Professor Caldwell

Government of the United States

A study of the structure and practical operation of our federal government. The course is based on a study of the Constitution with reference to its historical development and the interpretation of key clauses. The adaptation of government to new economic and social conditions is a central theme of the course, with emphasis on trends of the twentieth century. Library readings are designed to provide an understanding of present-day problems.

5 class hours a week. 2 semester credits.
8:00-8:50 M. T. W. Th. F.
Room C, Old Chapel Assistant Professor Caldwell

History of the United States Since 1865

This is a survey course useful alike to students and teachers in the field, and to all who wish an introduction to the history of recent times. Attention will be given to new viewpoints and the results of recent research.

The period covered witnessed the closing of the frontier, the rise of progressivism, and the development of the United States as a World power. It contains much that is basic to an understanding of current problems. Text and additional readings in selected works.

5 class hours a week. 2 semester credits.
11:00-11:50 M. T. W. Th. F.
Room C, Old Chapel Assistant Professor Cary

International Relations Since the World War

Current events in the international field will be studied from the perspective of the historical background. Traditional diplomatic policies will be correlated with current military, economic conditions, and political ideologies in the attempt to get behind the headlines. The course is designed for the general reader rather than the specialist. Readings will be assigned for the most part in recent periodical literature.

5 class hours a week. 2 semester credits.
9:00-9:50 M. T. W. Th. F.
Room C, Old Chapel Assistant Professor Cary

HORTICULTURAL MANUFACTURES

Food Preservation — (Open to those who wish college credit or practical training without credit.)

For anyone interested in confections and the general field of food preservation. The course offers study and practice of the most efficient methods, and the facts, theories, and problems involved. The course will be divided into two sections of four and two weeks each as follows:

July 3 to July 29 — Confections.
July 31 to August 12 — Home Food Preservation.

Those interested in only one phase of the work may enroll for either the four or two weeks unit. Each section is a completed unit and may be taken independently of the other. Credit will be given only to those taking the whole six weeks course.

2 class hours and 3 2-hour laboratory periods a week. 2 semester credits.
8:00-8:50 T. Th.; 8:00-9:50 M. W. F.
Lect. Room 110; Lab. Room 101, Horticultural Manufactures Laboratory
Assistant Professor Clague

NOTE: There is a tuition charge of $2.50 for the two-week unit, payable at time of registration or $5.00 for the four-week unit, if taken separately.

First Unit Registration: Monday, July 3, with classes on Saturday, July 8 and 15, to make up periods on July 3 and 4.

Second Unit Registration: Monday, July 31, 8:30 A. M. to 12 M. First laboratory in the afternoon.

PHYSICAL EDUCATION

Recreation Activities

This course is planned for teachers who may be assigned to extra-curricular work in the field of recreation in addition to their regular academic duties or individuals who are interested in community recreation.

From the theoretical side the history, nature and function of play will be considered, while the laboratory work will include practice in such activities as tennis, golf, badminton, swimming, soft ball, hiking, lawn bowls, archery and horseshoe pitching.

Program planning for recreation in the community and home will be considered and trips will be taken to nearby parks and playgrounds to observe activities in progress.

1 class hour and 2 2-hour laboratory periods a week. 1 semester credit.
2:00 — 2:50 F.; 2:00 — 3:50 T. Th.
Physical Education Building Assistant Professor Derby

PSYCHOLOGY

Educational Psychology

This course is designed for teachers and others interested in school children and school problems. It aims to explain and evaluate the psychology of educational theories and techniques, and to develop a comprehensive understanding of the school child's success and difficulties. The following topics will be considered: heredity and growth; health in learning; factors of emotional stress that retard learning; intelligence; individual differences; motivation of the individual and the class; learning; diagnostic and remedial procedures in treating retarded learning; and general intellectual training. Textbook, outside readings, lectures and discussions.

5 class hours a week. 2 semester credits.
8:00-8:50 M. T. W. Th. F.
Room 102, Stockbridge Hall. Assistant Professor Neet

Mental Hygiene

This is a comprehensive course which deals with the development of good personality habits and individual mental hygiene. The following topics will be considered in a detailed manner: origin of behavior; drives and the development of motives; factors of learning in adjustment; adjustment mechanisms; emotional disorders and the neuroses; the development and measurement of personality traits; organic factors in personality; and the application of positive mental hygiene. In dealing with the above topics the course will draw upon data and cases of normal and abnormal behavior in child study, education, and psychology.

5 class hours a week. 2 semester credits.
10:00-10:50 M. T. W. Th. F.
Room 102, Stockbridge Hall. Assistant Professor Neet

NATURE GUIDE SCHOOL

The Nature Guide School is an outdoor training school for nature leadership. It aims to enrich the program in nature study and in nature recreation for teachers, 4-H leaders, scout and camp fire naturalists, nature counselors, playground leaders, and others.

Location: Pine Tree Camp, Plymouth, Mass.

Courses: June 17 — Two weeks pre-camp school for nature leaders opens.
July 5 — Six weeks camp opens.
August 4 — Federated Garden Club week opens.

Extra-Curricular Activities: Swimming, boating, museum, activities, conservation, camp fires, pioneering, trailside museum, nature trails, camp fire cookery.

For illustrated booklet giving full details, write Director of Summer School, Massachusetts State College, Amherst, Mass.

GOESSMANN CHEMISTRY LABORATORY AND DINING HALL FROM THE CROSS WALK

OTHER EDUCATIONAL OPPORTUNITIES

AT

MASSACHUSETTS STATE COLLEGE

The Four Year Undergraduate Course

The four year course, leading to the Bachelor of Science degree, offers opportunity for major study in the fields of Agriculture, Horticulture, Physical and Biological Sciences, Physical Education for men, Liberal Arts and Home Economics. Strong supporting courses are given in the Humanities and special training is offered for those who wish to prepare for teaching in any of the fields mentioned.

The requirements for admission are based upon the completion of a four year high school course or its equivalent. Fourteen and one-half units must be offered; eight and one-half in a prescribed group including English, foreign languages, mathematics, and history; and two to six in the restricted elective group selected from additional science, history, and language. Free electives not to exceed four units may be substituted for a corresponding number of units in the restricted elective group.

The normal annual expense of a student in this course is $550.00 which may be reduced to $450.00 by strict economy. These amounts cover the annual tuition charge of $100.00 for residents of the State and other strictly college expenses. They do not include amounts for clothing, travel, etc., which vary so much with individuals. Some opportunities for loans and scholarships and for work on the campus are available.

Student life is wholesome and interesting, and constitutes an important part of the educational process. Intercollegiate and intramural athletics are conducted with the aim of giving every student an opportunity to participate in some sport. Student academic activities such as musical clubs, dramatics, debating, publications and judging teams are well supervised and participation in them not only offers splendid training, but is considered a high campus honor.

For over half a century this College has offered a high grade of educational training to its students and its Alumni have taken many important positions of responsibility.

For catalog and further information write the Dean, Massachusetts State College, Amherst, Mass.

The Graduate School

The purpose of the Graduate School is to provide qualified students with proper guidance in the methods of advanced study and research. Courses leading to the degrees of doctor of philosophy, master of science, and master of landscape architecture are available. Students who desire advanced courses but who do not wish to become candidates for advanced degrees also may be admitted.

Admission to the Graduate School may be granted to graduates of the Massachusetts State College and to graduates of other institutions of good standing who have received a bachelor's degree substantially equivalent to that conferred by this College.

MASSACHUSETTS STATE COLLEGE

1939 Summer Session

ADVANCED APPLICATION FOR CREDIT COURSES

July 3 — August 12

Name .....

Address .....

Are you a teacher? ..... Where? ..... Subject? .....

Are you a College Graduate? ..... Institution, Degrees, Dates? .....

Are you a Normal School Graduate? ..... Institution, Dates? .....

Are you a High School Graduate? ..... Institution, Dates? .....

Are you a College Student? ..... Where? ..... Year .....

Do you desire graduate credit? ..... Where? .....

Do you desire college credit? ..... Where? .....

Please list courses in which you intend to enroll:

.....

.....

.....

.....

Send to Short Course Office, Massachusetts State College, Amherst, Mass.

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

Two-Year Non-Degree Courses in Agriculture and Related Vocations

For twenty years the Massachusetts State College in addition to its degree courses, has been conducting non-degree courses for students who wish to get fundamental training in some agricultural business. More and more, high school graduates not otherwise prepared for college entrance, whose inclinations are towards the practical field of agriculture, are finding the work of this department of the College well suited to their needs.

It will help you in your vocational guidance work in high school to know fully what service we can render you and your students, through the Stockbridge School of Agriculture.

The work is divided into nine major programs — dairy manufactures, animal husbandry, poultry, floriculture, horticulture, pomology, vegetable gardening, wildlife management, and foods and food processing, for hotel and restaurant work, one of which is selected by the student, depending on the job for which he wishes to secure training.

No entrance examinations are required. Minimum age seventeen years; minimum schooling eighth grade. Three hundred and eleven students were enrolled in 1938. Ninety per cent are high school graduates, and one-fifth of the entering class are twenty-one years of age or older.

The first year consists of six months' study at the College and six months of required placement training, under the supervision of the College. During the placement period the student is expected to learn much of the practical side of his particular vocation. He is recommended to a position. These positions are on farms in dairies, greenhouses, poultry plants, hotels. The nature of the position depends on the student's particular objective.

The second year consists of eight months' study at the College. On the completion of the course a diploma is granted. Tuition is $50.00 a semester to residents of the State. Semester begins October 2, 1939.

For complete booklet describing program write to Director of Short Courses, Massachusetts State College, Amherst, Mass.

Bulletin

MASSACHUSETTS STATE COLLEGE

Library

Nature Guide School

1939

Bulletin

MASSACHUSETTS
STATE COLLEGE

Nature Guide School
1939

A letter to you:

Dear Friend:

Here is the Nature Guide School catalogue. If no letter accompanies this booklet, it means that the answer to your query is in this pamphlet. Read it through carefully. If you are interested in becoming a nature guide, you will find herewith the story of an educational experiment which has far reaching implications.

You may be doing a real service by handing this booklet to a prospective nature leader.

Remember that the camping unit is limited to twenty-six individuals. An early registration will assure you a place.

Yours for getting outdoors,

Wm. S. Vinal
"Capt. Bill"

Director

Amherst, Massachusetts

Volume XXXI | March, 1939 | Number 3A

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1500—2-'39. No. 6541

1939 CALENDAR*

Saturday afternoon, June 17.....Pre-Camp School for Nature Leaders Ope

Saturday morning, July 1.....Pre-Camp School for Nature Leaders Clos

Wednesday afternoon, July 5.....Six Weeks Camp Open

Thursday morning, July 6.....Class work begins at 8.30 A. M

Friday afternoon, August 4.....Federated Garden Club Week Ope

Saturday noon, August 5.....Buffalo Steak Roa

Thursday night, August 10.....Annual WhoopNan

Friday afternoon, August 11.....Nature Guide School Clos

*No regular student is accepted for less than a week.

Wanderlust

*****I know not where the white road runs, nor what the blue hills are,*
But man can have the sun for friend, and for his guide a star;
And there's no end of voyaging when once the voice is heard,
For the river calls and the road calls, and oh, the call of a bird!

* * * * * *

And come I may, but go I must, and if men ask you why,
You may put the blame on the stars and the sun and the white road and the sky!

— Gerald Gould, in Stevenson's "Home Book of Verse"

NATURE GUIDE SCHOOL STAFF

Officers of Administration

Hugh P. Baker, D. Oec., LL.D.	President
Roland H. Verbeck, B.S.	Director of Summer School
Fred C. Kenney	Treasurer

Faculty

William G. Vinal, Ph.D.	Director of Nature Guide School and Professor of Nature Education
Harvey L. Sweetman, Ph.D.	Assistant Professor of Entomology
Olive Sweetman, M.S.	In charge of Trailside Museum
Lillie Hale Vinal	Camp Mother
Doris Colgate, B.S.	Field Assistant
Eleanor Sheehan, B.S.	Field Assistant

Staff First National Girl Scout Training School

Visiting Instructors

Charles P. Alexander, Ph.D.	Professor of Entomology, M.S.C.
T. E. Dillon, "Chief Opie Dilldock"	Managing Director, Downtown Boys' Club, Newark, N. J.
James E. Fuller, Ph.D.	Research Professor of Bacteriology
Mason B. Handy, B.S.	Superintendent of Schools, Plymouth
Lawrence V. Loy, M.S.C.	Extension Specialist in Community Organization and Recreation
Minnie Stebbins	Supervisor of Nature Study, Emeritus, Springfield Public Schools
Mr. Marion Dodge Weston, Ph.D.	Professor of Nature Education, R. I. College of Education

Other noted naturalists will be invited to speak at the camp fire and to lead trips afield.

PROGRAM

The Pre-Camp School for Nature Leaders

This two weeks session has been specially arranged for leaders who expect to serv this summer as nature counselors in summer camps, as nature leaders on playgrounds or who expect to direct nature clubs or day camps. It comes at the interval betwee school and camp. The Nature Guide School is so located that many students wil be able to take advantage of the course while en route to their summer's work. Em phasis will be placed on a review of the birds, trees, flowers and other phases of natur often dealt with in camp and also on the methods which are peculiarly fitted to makin these activities successful for group work and under informal settings. The experience described for the six weeks' course are offered here except, of course, in an abbreviate and more concentrated form. The total expense for the two weeks, June 17 to July 1 is $30.00.

Federated Garden Club Week

Depending on whether cabin space is available and only up to capacity of the camp.

June 17 to July 1 and the week of August 5 to 11 have been reserved for garden clul members who would like to get into the open together. Opportunity will be offered fo all kinds of nature studies aad recreation. All the activities of the Nature Guide Schoo will be available. The total cost per week is $15.00.

CAPE COD AHOY!

The Nature Guide School of Massachusetts State College is a complete camping uni at Pine Tree Camp, the First National Girl Scout Training School*, Plymouth, Mass There are sixteen cabins nestled in a hillside grove on the southern end of Long Pond each cabin holding two students. A community house with a fireplace for rainy day and evenings, a nature museum, row boats, sail boats, tennis courts, a wonderful san beach for swimming and other facilities make the place attractive for summer study.

Pine Tree Camp is for adults interested in Scout Leadership. It offers, under nation ally known leaders, courses in camping, counseling, arts and crafts, pioneering, music folk dancing, water-front, and group leadership.* This coming summer, Nature Guid School will present courses in Marine Biology, Insect Study, Physiography, Scoutin Leadership, and research, known as the "Practicum" course. There will be close co operation and combining of staffs and courses.

Sociability, merriment, campfire, cookouts, caravan trips, dining, handcraft, an swimming together, as well as courses, will be most stimulating and satisfying.

IN PILGRIM LAND

"The breaking waves dashed high
On a stern and rock-bound coast"

was written by an English lady who never saw New England. The Manomet Hill are glacial. The nearest rock-bound coast is Cohasset and Scituate. There may b other ideas about old Plymouth that you will need to straighten out. Did you kno that the Pilgrims first landed at Provincetown? Plymouth Rock itself was transporte from the North Shore in glacial days.

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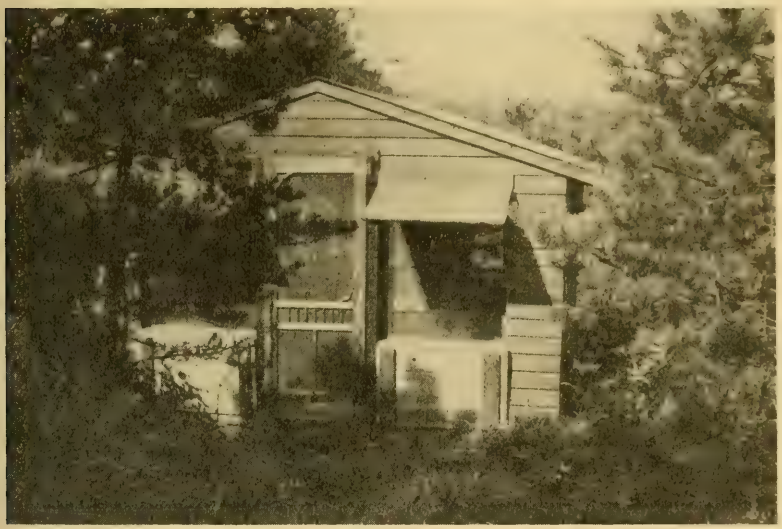
*A 1939 Pine Tree Camp booklet giving a complete description of courses may b obtained by applying to Miss Ruth Stevens, National Girl Scout Office, 87 Beaco Street, Boston, Massachusetts.

If you want to see Pilgrim land — untrammeled nature as the Pilgrims saw it — if you would like to hike the Old Indian trails — if you would like to see the Pilgrim Processional — Myles Standish in regalia and all the other passengers of the Mayflower just as they looked marching up Burial Hill — if you would see veteran trees that saw the Pilgrims — well — just plan for next summer at Nature Guide School.



Students live in cabins nestled in the pines. Each cabin is a home for two students.

You will be fascinated by weather beaten houses, old-time foot trails along the eskers. You will skirt cranberry bogs, inspect glacial kettle holes, and get a whiff of fragrant clethra or the native heaths. Perhaps you never saw the rare sabbatia. Plymouth is the real home of the trailing arbutus — called Mayflower there, of course. Would you like to go out to the Gurnet and then drop back past Clark's Island to Plymouth Harbor when the purple and orange colors are fading back of the Manomet Hills — just like the first Mayflower? Would you explore the Sandwich dunes or gather shells from White Horse Beach to the "Spit" in Plymouth? Would you hear the pitch pines sing or the scrub oaks rustled by a Northeaster or the roar of battle between the sea and the shore? Would you go footing it across the Cape with Cap'n Bill (the old salt will be in his native heath) admiring dusty miller and sea lavendar, picking bayberries, focusing field glasses on terns, laughing gulls, and sandpipers? Would you swim in sand bottom lakes? Would you learn to sail? Would you wade out to oyster beds, tread quahogs "squanto" style and dig clams? Would you like to be a participant in a clam bake on Sagamore Beach? Would you know the three species of sundew that grow on quaking bogs of the old colony? Would you be one of the lucky thirty who can live at Nature Guide School at Long Pond, a lake over a mile in length? Then sign up while there is a cabin left. This is a real home — coming for Cap'n Bill who directed Camp Chequesset, the Nautical Camp for Girls, for fourteen summers; and who surveyed Cape ponds and did experimental clam farming for seven summers for the State Conservation Commission. His feet are itching to get going. He wants you to know early America as only an old-salt naturalist can know it.

WHAT'S NATURE-WISE ON CAPE COD

The Cape Cod Canal, Peter Rabbit's birthplace, the State Fish Hatcheries, th State Game Farm, the Shawme Reservation, old Sandwich glass, the last of the se captains, bayberry candle making, lobstering, the oldest windmill in America, the littl white Cape Cod cottage with picket fences, Joseph Lincoln, blackfish ashore, Cap' Kidd's treasure, Thoreau's tramp along the Cape, hobnobbing at Cahoon Hollow Coas Guard Station, the Austin Ornithological Station, native asparagus, beach-combing first wireless, sea bass fishing, Highland Light — the second most powerful beacon o the Atlantic coast, Wellfleet quahogers and "Cherrystones", Indian relic hunt, Marin Biological Laboratory, U. S. Bureau of Fisheries, Oceanographic Institute, Agassiz' Penikese, Pilgrim spring, the Mayflower Compact, sinking of the submarine S-4, th town crier, ambergris, Tern Island Sanctuary, Crosby "cats" racing round the buoys old Indian church, Holyhock Lane, pearls from fish scales, passing ships, white surf and the romance of the Clipper "Cap'ns".

Nature offerings galore; we can only list 'em. When the end of summer school ring down the curtain you will not have seen the half-of-it, but you will have had one of th most enriching summers nature-wise that you ever had.

INTRODUCTION

During the last few years, nature recreation has developed more than a decade i advance of expectations. For example: 142 City Parks have varied activities in natur recreation; 101 cities are maintaining 270 nature trails. States like Indiana and New York and cities like Pittsburgh, Cleveland ,and Cincinnati are providing a nature guid service for the public. Federal Recreation-Demonstration Projects are convertin thousands of acres of submarginal land into great playgrounds and camping areas Land zoning is bringing about wild life sanctuaries. Thousands of dollars are being spent on city parks. Wild life inventories, Friends of Native Landscape, Youth Hostels Walk-a-Ways Groups and a hundred and one related organizations are being born Our outdoor school rooms in the form of playgrounds, camps and parks are here.

If the outdoor program in nature education is to be commensurate with the physica investment being made in these new recreation areas, there must be leadership training and an adequate vision of an enriching program. This is the "reason-of-being" of the Nature Guide School of Massachusetts State College. It has been organized for the training of:

1. **Teachers** who wish to enrich their program.
2. **Playground Leaders** who are interested in directing nature programs or clubs.
3. **4-H Leaders, Scout and Camp Fire Naturalists** who would strengthen the "Nature phase" of their activities.
4. **Nature Counselors** for summer camps.
5. **Community and Park** nature guides.
6. **Parents** who wish to be prepared to meet the nature problems in their own family.
7. **Garden Club and Nature Club** members who are interested in nature culture.
8. **Museum workers** who are interested in extending their educational program to the outdoors.

The Nature Guide School is open to adults who have a genuine interest in nature study and who have the equivalent of a high school education.

The Nature Guide School Is a Training School in Conservation Leadership

In June, 1937, Dr. J. W. Studebaker, United States Commissioner of Education, called a conference on Conservation Education. The State of Wisconsin has declared a state law by which every school grade from the kindergarten through college shall teach Conservation. There are 114 school forests in Wisconsin. The first one was

started in 1928. In 1936, conservationists realized that wild life had reached such a state of disaster that they called the first North American Wild Life Conference at Washington. All are agreed that if we are to save the forests and its wildlings, that here must be conservation education. The weakest chain in conservation education is the lack of leadership.

Hiawatha's Departure, a colorful camp ceremony.

Conservation is not conversation. It is not a subject or a textbook for recitation. It is something to be lived, to be practiced. And the only laboratory for such practice is in a forest area where a conservation program is at work. Fortunately, the Massachusetts Department of Conservation has a forestry program which is being carried out in connection with the recreation and wild life programs. Here hundreds of acres have been improved by thinnings and release cuttings, thousands of seedlings have been planted. Within visiting distance are fish hatcheries, game farms, and varied projects of the Civilian Conservation Corps. Because of these potentialities of the state forests in the great vacation land of Cape Cod, where public camping grounds and picnic facilities are provided, the Manomet Hills in the region of the Myles Standish State Forest are selected as a strategic point for leadership training. Students will return home, not with foggy ideas about conservation, but with the benefit of actual experience and participation under expert leadership.

NATURE GUIDE SCHOOL CREDITS

Classification of Students

1. **Non-Credit Students.** By non-credit students is meant those who are not working for college credit or for a Nature Guide's certificate. There are students who seek nature culture or practical leadership experience for a week or more and the schedule is so arranged to make it possible for such students to make free choices and concentrations.

2. **Undergraduate College Credit.** All courses are elective for college credit. Properly qualified students may receive undergraduate credit under conditions approved by the Dean of the College and the Director of the Nature Guide School. Should a

student desire to transfer credits it will be necessary for him to make arrangements with his own college before attending the Nature Guide School.

3. **Graduate Credit.** Graduate minor credit may be given to students qualified to register. For students anticipating an advanced degree at Massachusetts State College, transcripts, or statements of related courses taken elsewhere, must be sent to the Director of the Graduate School, Massachusetts State College well in advance of registering at the Nature Guide School. It will be necessary to determine in advance whether the individual has the correct prerequisites.

4. **The Nature Guide School Certificate.** How long does it take to become a certified nature guide? This is equivalent to saying, "How long will it take to learn to play the piano?" It depends on ability, interest, and experience. As a rule, the more field work and the more experience in leadership the student may have had the shorter the time that it will take. It is estimated that the average college student can qualify for nature guiding in four summers. Twenty hours of diversified field content-courses in the natural sciences, four hours of leadership methods-courses, plus successful experience in outdoor leadership should result in an all-round knowledge of nature and proficiency in leadership. The Nature Guide School staff will be the judge of whether a student has sufficient field knowledge and technique of leadership to be awarded the Nature Guide certificate.

GENERAL DESCRIPTION OF COURSES

These are substantial field courses designed to prepare for outdoor leadership. The theme of each course includes:

1. **Identification, life histories,** and **field observation.**
2. **Conservation** is emphasized in every course. In Forestry, for example, one actually learns the techniques of forest practice that may be used.
3. **Recreation.** Each course will stress the opportunity for nature games and other recreational activities.
4. **Appreciation.** Methods of utilizing materials for appreciation are stressed.

Students should bring a goodly assortment of reference books for the two content courses that they plan to elect.

In general a student who has had good field work in one content course should elect the other two.

These waders are members of a class in pond and stream study.

Students may enroll at the beginning of any one of the four years and continue until the certificate is earned.

Each summer students should elect the two courses that best serve their needs. It will not be possible for students to carry more than 3 courses per summer term.

All courses will be for six weeks — 6 hours per week — and 2 hours' credit per course, or a total of 6 hours' credit.

All courses meet for 2 2-hour field work periods and 2 1-hour lecture periods. Assignments will be required.

N. S. 81 Scouting Methods. The revised Girl Scout program (1939) is the basis of the course. The new point of view in education, ("Child-centered" rather than "Program-centered") will be found to be both stimulating and satisfying. The course is flexible enough to relate to the interests and individual needs of the members whether the student be a scout leader, teacher, or prospective Nature Guide. The six neighboring camps with a camp population of 1000 boys and girls and the Myles Standish State Forest offer an unusual field for participation. The Girl Scout Handbook provides source material.

Two 2-hour Field Periods, two 1-hour lectures, Credit, 2.

Dr. Vinal and National Girl Scout Training Staff.

Plan of Courses for Undergraduate Credit

The four-year rotating plan of course material is as follows:

		1939	1940	1941	1942
Fridays 8:30	8:30 10:30 M. & W. 2–3 Tu.	N. S. 53 Insects	N. S. 61 Flowering Plants	N. S. 63 Trees and Forestry	N. S. 55 Birds
10:30	10:35 12:30 M. & W. 2–3 Th.	N. S. 54 Invertebrates (Marine) Biology	N. S. 65 Gardening	N. S. 62 Non-flowering Plants	N. S. 56 Ponds and Streams
9:30	8:30 10:30 T. & T. 2–3 M.	N. S. 71 Physiography	N. S. 72 Geology	N. S. 58 Vertebrates	N. S. 57 Ecology
11:30	10:35 12:30 T. & T. 2–3 W.	N. S. 81 *Scouting Methods	N. S. 82 Camp Leadership Methods	N. S. 81 Scouting Methods	N. S. 82 Camp Leadership Methods
By Arrangement		N. S. 90 Practicum	N. S. 90 Practicum	N. S. 90 Practicum	N. S. 90 Practicum

*All students are expected to take the courses in leadership.

***N. S. 171 Physiography.** A course in advance of N. S. 71.

The physical evolution of Cape Cod and the Old Colony had a distinct influence on the destiny of the Pilgrims and their children. The axis of the Manomet Moraine, the outwash plains with their kettle hole lakes, and the East-West troughs show clearly

the results of the glacial invasion. The changing shoreline, the deserts of wind-driven sand, and the moorlands exhibit in simple terms sea shore geography. To the north are drumlins igneons headlands and the Blue Hill Weather Bureau of Harvard University. It would be difficult to find a more satisfying region for the understanding of Physiography. A specific problem will be selected by each student. Text books recommended: Gayle Pickwell, "Weather (1938)," $3.00; Williard N. Chute, "Swamp and Dune," $1.50.

Albert Perry Brigham, Cape Cod and the Old Colony. Putnam.
Two 2-hour field periods, two 1-hour lectures and assignments.
Credit 2, or additional.

Dr. Vinal.

*N. S. 153 **Insect Study.** A course in advance of 53.

To prepare the student to recognize the orders and families of insects, to know the common species of insects, and to know the habits, life histories, cycles, methods of handling, and role of certain species in nature. Special emphasis will be placed on studying and observing the insects in the field. A specific problem will be selected by each student in addition to the regular class work. Test book: H. E. Jaques, "How to Know the Insects," 1938. $1.00.

Two 2-hour field periods, two 1-hour lectures and assignments, Credit 2 or additional.

Dr. Sweetman.

*N. S. 154 **Marine Biology,** A course in advance of 54.

To prepare the student to recognize the common marine forms in their natural habitats, and to become familiar with the habits, responses, life cycles, and importance of the various animals in the environment. A specific problem will be selected by each student in addition to regular class work. Test Book: Ralph Buchsbaum, "Animals without Backbones," University of Chicago Press, 1938. $3.75.

Two 2-hour field periods, two 1-hour lectures, and assignments, Credit, 2 or additional.

Dr. Sweetman.

Practicum. This is a practical course in which a student selects a research problem that is related to his major field and works it out at camp. It must be specially arranged in advance. Only advanced students who are reasonably qualified in two of the three content courses offered are eligible to take the Practicum course. Any member of the staff may be selected as adviser. The problem might require four summers. "Education through Nature Trails" is a sample study-problem.

Recreational Activities for Afternoons

The fabric of Nature Guiding is woven from two kinds of threads. The "warp threads" may be thought of as the four-year plan of courses. They are the academic threads which give technical substance to the finished product. The "woof threads" are sometimes known as extra-curricular experiences (non-credit in college). The following enriching activities or "woof threads" will interweave with the academic threads and are considered an important part of the equipment of a well-balanced program for Nature Guide training. Recreation, at its best, is education.

It is suggested that students perfect themselves in as many of the following outdoor arts as possible. These experiences are constantly available. With four summers of practice, one should become proficient in all these fields. Select according to your needs by numbering the squares.

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*These courses will be recognized for Graduate Credit when requirements have been fulfilled.

] **Swimming.** Outdoor swimming with a competent Red Cross Instructor is available. Nature Guides should be come proficient in this important art.

] **Outdoor Cooking.** Wednesday nights and Saturday noons — at other times by ırrangement — special experiences are given in outdoor cookery.

] **Camp Fires** will be a regular feature. Prominent naturalists will speak. There will ›e ample opportunity for trying your skill at story telling, campfire songs and dramatics.

] **Boating.** Boats are available for use on Long Pond. Instruction is offered in the ·lementary skills of rowing.

] **Pioneering.** This activity is offered for those who wish to have actual experience n camping. Tents and other outdoor equipment are available. The 5000 acres of state ·orest, some in wilderness areas, offer an unparalleled opportunity.

] **Horsemanship.** Horses are available to students at a special rate. The camp is ›n the famous Cape to Berkshire Bridle Trail.

] **Canoe Trips.** The Cape Cod lakes offer unlimited opportunities for exploration vith canoes. The best way to become "Commodore" is to be a "Voyager" of experience.

] **Fishing.** If the bay or lake beckons you to fish, you may stray as far as you wish. You will want to know the elements of fly fishing so as to be a regular guide. The open ·eason is from May 1 to July 31.

Co-ed nature students simulate a Navaho Band.

] **Hiking.** The Myles Standish State Forest offers a network of hiking trails that can ıardly be paralleled. Highest standards in the technique of hiking are insisted upon.

] **Hunting with a camera.** Many of the state forests have been set apart as wild life ·efuges. Exploring the picturesque dunes and shores of Cape Cod with a camera is pleasure that will not soon be forgotten. Willing hands to aid you in nature photo·raphy will help you record the pleasant episode of a summer at Nature School.

] **Sundays.** There are churches available in nearby villages to meet all needs.

EXCURSIONS WITH A PURPOSE

The Nature Guide School is generously located in regard to meaningful trips for tudents of nature study. Short excursions on Wednesday and longer all-day excur·ions on Saturday, "cooking out" the meals will be a regular feature.

SOME AUTO--CARAVAN TRIPS AVAILABLE

Historic Plymouth Rock, Pilgrim Hall, Brewster Gardens, Burial Hill, Nationa Monument to the Forefathers, and the Pilgrims Progress. Anson B. Handy, Superin tendent of Plymouth Schools (and Harvard roommate of Cap'n Bill) will be the "guide of the day".

The Harlow House (1677) where the household industries of Pioneer New Englanc are emphasized. The preparation of flax and wool, spinning, weaving of linsey-woolsey homespun on the 200 year old loom, dyeing, and candlemaking will be entrancing to those who have interest in Pilgrim industries.

Wood's Hole the Bureau of Fisheries, Oceanographic Institute, and Marine Biolo gical Laboratories will make you want to linger long after the shadows have begun to creep across Martha's Vineyard and Nantucket Shoals.

Provincetown, the Pilgrim Monument, designating the first landing place of the Pilgrims, Fish Weirs, Cold storage plants, the artist colony, the buried forest, and quaint streets, are all at "the end of the road" for Cape Cod. You will feel like a Casta way seaman when you have to choose between visiting a gray boat of the North Atlanti Squadron or going to a show at the Provincetown Players "little theater" where a ship' bell rings up the curtain. Even then the Portugese Citizenry or the Town Crier may make you late but you will be amply repaid.

Myles Standish State Forest has over 11,000 acres, 15 miles of foot trails, four picni areas, 119 fireplaces, 45 tenting and trailer sites, three bathhouses on three lakes, and ponds stocked with perch, trout, pout, and pickerel. There are two one-room and thre three-room cabins. The log cabins are built as log cabins were built 300 years ago Your friends may rent these at $15 to $20 per week but they will have to make reserva tions early. It is at Pine Tree Camp's back door. Days in the State Forest will b spent leisurely and profitably. If you climb the fire tower you will look down upo American History that dates back to glacial days.

Chatham and Monomoy. For those who can take it we will hike down Cape Cod' newest land. Others will get a thrill out of tripping it between the surf and dunes in motor beach-wagon on "Jumbo" tires. Others — with a "yo-ho" will board a fisher man's "Cat" from Stage Harbor. Whether footing it or turn about — whether spendin the night with the gulls and terns on a sand dune — or sleeping at the Coast Guar Station it will be a rare experience. How the Mayflower was turned north by Chathar Shoals, Pollock Lightship, tragic wrecks, curlews and sanderlings, things that grow o dunes, will be a treasure-day in itself. Thirty years ago Cap'n Bill treked the ten mil Monomoy Peninsula to wire acceptance of his first teaching job. He has not bee down the long beach since. Once more he longs to stand at the edge of the surf and point out the handiwork of the sea. You will not forget your trip to Monomoy, either.

The Boston Trip has many possibilities. The glass flowers at the Museum of Com parative Zoology at Harvard are sometimes referred to as the "Eighth Wonder." Th Arnold Arboretum at Forest Hills is the largest tree park in the world and the Chil ren's Museum at Jamaica Plain is in the front ranks of museum education.

Fire Observation Tower. The Massachusetts Department of Conservation maintai 48 towers for the detection of forest fires. The fire tower in the Myles Standish Sta Forest not only gives a wide outlook over the surrounding Cape, but an unprecedente chance to study the scenery with the help of a topographic map and binoculars. Th tower will help students understand the basis for topographic maps and the State Lar Planning Program. The ranger usually provides a "gorgeous sunset," a rendezvo for a "memorable supper," and a "wealth of experiences" at the camp fire. An afte noon in the Manomet Hills is a good educational investment.

LEADERSHIP TRAINING

The Nature Guide School is unique in that it affords many opportunities for practice work in nature leadership. Students in various courses and especially in the "Leadership Courses" will be given group practice work with nature games, field trips, museum activities, etc.

The Trailside Museum. One building has been designated as a local museum. Students will be given experience in teaching service and in museum techniques essential to park service. Short popular lectures explaining local formations will be given daily.

Nature Trails, open to the public, will be maintained at strategic points in the State Forest. The trails will be serviced by students under guidance.

Camp Fires. Camp Fires will be held at the Council Ring under leadership of Nature Guide students. Visiting naturalists will also speak.

Nature Trips. The Myles Standish State Forest has 11,000 acres, 500 of which are devoted to recreation, subdivided into four picnic areas and tent sites. This is an unusual opportunity for regular guided trips for the public.

Camps of the Vicinity. There are four boys and three girls camps within a radius of two miles with a population of about 1,000 campers. Teams of three or more students will visit camps in the vicinity, upon invitation, to put on an afternoon nature program and evening camp fire. Transportation will be provided by the camp serviced. Requests should be made as far ahead as possible.

Apprenticeship camps are those private or organization camps which agree to cooperate with the Nature Guide School in leadership training. Students will give their services for the remainder of the summer following the close of Nature Guide School. The Director of the camp, in return, will supervise the program and evaluate the student's ability as a nature leader. In some cases, the Director may agree to employ successful students for the following summer. It is expected that every prospective nature guide will have the opportunity to prove his worth.

Employment Bureau. As far as possible the Nature Guide School aims to place qualified nature leaders in camps, playgrounds, clubs, parks, schools, and scout troops. Preference will be given to graduates of the School. People seeking certified nature leaders will need to give us time to train them.

EXPENSES

Six Week Course for Adults

Tuition for 3 courses or 6 semester hours	$21.00
Board and cabin for six weeks, $8.00 per week	48.00
Recreation fee	3.00
Infirmary fee, 50 cents per week	3.00
Total expense for 6 weeks	$75.00

One or Two Weeks Courses for Adults

Tuition per week (Admits to all activities)	$4.00
Board and cabin for a week	10.00
Recreation fee per week	1.00
Infirmary fee per week	.50
Total expense for student per week	$15.50

Important Explanatory Notes

Application should be made on the blanks provided and accompanied by the tuition fee due Massachusetts State College. It should be mailed to Short Course Office, Mass. State College, Amherst, Mass., before arrival at camp.

Checks for board and cabin and infirmary fee must be made payable to First National Training School and paid over upon arrival at camp.

Cabins are limited and can only be secured by advanced registration.

No refund for board and cabin is made for absences of less than seven continuous days.

Cots, mattresses, and pillows are furnished by the camp.

Bedding. Each student will supply his own blankets, sheets, and pillow cases.

All students must conform to regulations.

Summer session regulations apply to Nature Guide School as regards credits, fees, refund, etc.

Visitors may be accommodated as follows: Breakfast, .50; Dinner, .75; Supper, .50 if notification is given in advance.

SCHOLARSHIPS

Many organizations, notably Parent Teacher Clubs, Garden Clubs, and Service Clubs, such as the Rotary and Izaak Walton League, are offering scholarships. In this way they are returning to the Community at once leaders who will take initiative in Conservation projects such as 4-H clubs, school forests, nature clubs, a nature program in the community park, playground, or camp. For the information of such clubs, the following list of scholarships is suggested:

Scholarship — $30.00 — will send a local nature leader to camp for the two weeks Pre-Camp School. He would return Saturday, July 1, equipped to lead a nature club on the playground or in the neighborhood or at camp.

Scholarship — $75.00 — will pay tuition, board and lodging for the 6 weeks' course.

It is recommended, however, that a student should show sufficient interest to be willing to pay part of his expenses. It would be better to offer two $38 scholarships than one $75 scholarship.

FANNIE STEBBINS 1938 CAMP SCHOLARSHIPS were made possible through friends of Miss Stebbins in cooperation with the American Nature Study Society. The scholarships paid the tuition at Nature Guide School for outstanding teachers of nature study in the elementary schools. The awarding committee consisted of Dorothea Clark, Sara Chase, Elizabeth F. Wossum and Claudia Schmidt of the Springfield Public Schools.

What to Wear

Simple clothing should be worn to camp.

Through the courtesy of the National Girl Scout Training School their camp uniform for leaders should be worn. Catalog No. 6-341 in sanforized gingham $4.00. A simpler uniform consists of a Girl Scout chambray middy and bloomers, Catalog No. 4-437, $1.95. A few uniforms may be rented at camp. The Girl Scout "slacks" for field work 8-101 or "nearly worn out city street clothes" if you wish. Send for their equipment catalog.

Personal Equipment

Camp Uniform
Camp tie (sold at camp)
Shoes—low heeled stout shoes, tennis shoes or Keds for Folk Dancing
Stocking—Wool and cotton
Sweater or coat (or both)
Rubbers or Rubber Boots, Raincoat, Poncho (Poncho or ground sheet must be brought by anyone wishing to participate in overnight hikes)
Cup and mirror for use in cabin or tent
Field glasses, hand lens, nature books
Warm bathrobe, night clothes, slippers
Toilet articles, towels, wash clothes
Bathing suit—bathing cap (buy bathing cap at camp)
Heavy blankets, at least 3, preferably wool
Sheets
Pillow slips
Pocket knife and compass
Flashlight and batteries
Note book and pencil

Use duffel bag, blanket roll or suit case for baggage (trunks cannot be accommodated in camp). Baggage should be sent by Parcel Post, prepaid, well in advance of the opening date of the course, to: PINE TREE CAMP, Route No. 2, Buzzard's Bay, Mass. Do not use express.

GIRL SCOUT SHOP — A Girl Scout shop is maintained at Pine Tree Camp for the convenience of students and staff. Camp uniforms as well as equipment may be secured there.

CHECKS CASHED — Five days' notice is required for cashing checks.

Medical Blank

A medical blank will be sent each student upon acceptance of his application. This is a health protection to the student and the camp, and it is to be filled out by a doctor and submitted to the nurse upon arrival at camp. Anyone who is not in good physical condition, or for other reasons does not seem suited to this type of living or training, may be refused admission to the course.

(*Continued next page*)

Application for Enrollment

Name.....Date.....

City or Town.....Street.....State.....

Present School or Occupation.....

Graduate of what high school.....

Graduate of what college.....Class.....

Check the Camp in which you wish to register

Pre-camp Training School.....Garden Club Week.....

Six Weeks Credit Course.....

Amount of check or money order enclosed.....Whom shall we notify.....

In case of illness? Name.....Address.....

Cabin Mate?.....

References: Have two of the following write a letter as to your moral character, intellectual capacity, and interest in nature study: Teacher, scout leader, employer, doctor, clergyman, camp director.

Transportation

All students are asked to arrive after lunch and before 4 o'clock on the day that the course begins. The railroad station is Plymouth, Mass., and the Plymouth Taxi Company meets all trains at Plymouth. For those coming from New York, inquire about trains to Buzzard's Bay where public automobiles meet all trains at Buzzard's Bay. The camp is ten miles from Plymouth and also from Buzzard's Bay. From Providence inquire about Bus Service to Plymouth and take Plymouth Taxi Company to camp.

To Motor to Camp

From Plymouth, pass the post office, take South Street on the right, follow through, bearing left past the Myles Standish Reservation, keeping to the macadam road. Watch for the "Pine Tree" yellow signs and follow into camp. For those approaching from Cape Cod or Rhode Island follow Route 6 to Route 3. Turn left on Route 3 continuing to Swift's Corner. Just beyond the Camp Garage, on the left, pick up the "Pine Tree" yellow signs and follow into camp.

Only open parking space is provided for those who bring their own cars. Space is provided for trailer camps.

MAIL — Send parcel post, letters, etc. to Nature Guide School, Pine Tree Camp, Route No. 2, Buzzard's Bay, Mass.

TELEGRAMS — Send via Plymouth, Mass.

EXPRESS — Send American R. R. Express, Plymouth, Mass.

Complete the following form and send with check as early as possible to Short Course Office, Massachusetts State College, Amherst.

Bulletin

MASSACHUSETTS STATE COLLEGE

HIGH SCHOOL DAY

May 6, 1939

Memorial Hall
High School Day registration
headquarters are in this building

Bulletin
MASSACHUSETTS STATE COLLEGE

THIRTIETH ANNUAL HIGH SCHOOL DAY

Saturday, May 6, 1939

An Invitation to

HIGH SCHOOL JUNIORS AND SENIORS, THEIR TEACHERS AND PARENTS

To Visit the College; to Inspect the Campus, the Class Rooms, Laboratories, Dormitories; to Learn First Hand of the Educational Advantages of Massachusetts State

Amherst, Massachusetts

VOLUME XXXI APRIL, 1939 NUMBER 4

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5m—3-'39. No. 6705

A LETTER AND INVITATION FROM PRESIDENT BAKER

To juniors and seniors in high schools, to their parents and teachers:

Again it is my pleasant privilege to extend a cordial invitation to you to come and visit with us at Massachusetts State College on our annual High School Day, this year scheduled for Saturday, May 6.

An increasingly large group of parents and teachers has been coming each year with high school students in order to learn, first hand, of the educational opportunities presented by the College and to chat with members of our teaching and administrative staff. I hope that many parents and teachers will come, again this year, on the occasion of our 30th annual High School Day.

Massachusetts State College provides a broad educational program. Our course of study is divided into seven major divisions: agriculture, horticulture, physical and biological science, liberal arts, physical education, engineering, and home economics. A student may undertake major work in any one of a large number of subject matter fields within these seven divisions, the work leading to either the A.B. or B.S. degree.

Conferences with Dean Machmer or with members of his entrance committee staff on High School Day will serve, I am sure, to provide a clear and detailed picture of entrance requirements and of educational opportunities at Massachusetts State College.

Conferences with the dean or with members of his staff comprise but one part of our High School Day program. Visitors will also have opportunity to inspect classrooms and laboratories under the personal guidance of members of our faculty. They will have opportunity to view an exhibition by advanced students in our R.O.T.C. military training unit, to watch a presentation by the student dramatic group, and to see a varsity baseball game. Our endeavor, in this respect, is to make our High School Day truly representative of a typical day in the life of an undergraduate student at Massachusetts State College.

I hope that many of you, high school students, parents, teachers, will come to Massachusetts State College on Saturday, May 6 and learn of the educational opportunities here presented.

HUGH P. BAKER.

ourses in Zdogy afford exllent prepavion for the st'ly of medics.

Physical education for women includes field hockey, folk dancing, swimming, tennis, archery and many other healthful activities.

These students a acting in a nch play which ty wrote, themses, as part of tir course work.

A co-ed drum major l the band.

Extra-curricular activitie clude a dramatic club, Roister Doisters (to be on High School Day), band, men's and women's clubs, an orchestra, deba club, student newspaper, year book, the Index.

Varsity teams take par intercollegiate football, l ball, swimming, hockey, cer, cross country, and tr

Thatcher Hall, freshman men's dormitory, provides accommodations for 150 students.

Abigail Adams Hall is the women's dormitory.

One corner of the lounge in Thatcher.

MASSACHUSETTS STATE COLLEGE HIGH SCHOOL DAY

May 6, 1939

SOME ITEMS OF INTEREST

Visitors to Massachusetts State College on High School Day will find a full program awaiting them.

The object of the day is to give high school juniors and seniors, their teachers and parents, an opportunity to confer with Dean Machmer and with members of his admissions staff for the purpose of learning about entrance requirements and about the wide and varied program of study which is offered at Massachusetts State, to inspect the campus and buildings, to learn something of student life.

To supplement the personal conferences, groups of visitors will be escorted by members of the faculty to buildings and classrooms so that visitors may learn, further, of the educational facilities at the College.

Miss Edna Skinner, adviser of women, and Miss Margaret Hamlin, vocational counselor for women, will greet all women visitors in Memorial Hall on the morning of High School Day.

Mr. Roland H. Verbeck, director of short courses in charge of the Stockbridge School of Agriculture will be in his office in South College until noon on May 6 to explain opportunities afforded by the Stockbridge School, a two-year course in vocational agriculture.

In the afternoon there will be a presentation, in Stockbridge Hall, by the Roister Doisters, undergraduate dramatic group. Following this, will be a varsity baseball game, the Statesmen versus Trinity. The baseball game officially concludes the High School Day program.

HIGH SCHOOL DAY REGISTRATION HEADQUARTERS ARE IN MEMORIAL HALL. VISITORS ARE URGED TO COME, ON ARRIVAL IN AMHERST, TO MEMORIAL HALL.

PROGRAM

High School Day

Massachusetts State College

Saturday, May 6, 1939

9:00 A.M.—12:00 M	Registration and inspection of Campus. ALL VISITORS ARE REQUESTED TO COME AT ONCE, ON ARRIVAL IN AMHERST, TO MEMORIAL HALL AND TO REGISTER THERE AT THE INFORMATION DESK. STUDENT INVITATION CARDS ARE HERE EXCHANGED FOR TICKETS ADMITTING TO THE EVENTS OF THE DAY.
9:30 A.M.—10:15 A.M.	Mounted drill and exhibition by the R.O.T.C. unit, under the auspices of the military department, at the riding park south of Paige Laboratory.
10:15 A.M.	Groups of visitors, under guidance of members of the faculty, will leave Memorial Hall to visit classrooms and laboratories. Visitors should be at Memorial Hall promptly at 10:15.
11:30 A.M.—1:00 P.M.	Lunch may be secured at the college cafeteria, Draper Hall, at moderate cost.
1:15 P.M.	A presentation by the Roister Doisters, college dramatic club, Stockbridge Hall.
4:00 P.M.	Varsity baseball game, Massachusetts State vs. Trinity College, Alumni Field.

FROM 9:30 A.M. UNTIL NOON, AND FROM 1:30 P.M. UNTIL 4:30 P.M.
DEAN MACHMER AND DEAN LANPHEAR
AND
MEMBERS OF THE SCHOLARSHIP COMMITTEE
WILL BE IN MEMORIAL HALL
FOR
PERSONAL INTERVIEWS

Note: The Program is so arranged that most visitors may return to their homes on Saturday evening. However, for those who wish to remain in Amherst on Saturday night, rooms in the homes of townspeople may be secured at $1.00 per person. Reservations may be made by addressing the Field Secretary, Massachusetts State College; but requests for reservations should be made two weeks in advance.

For extra copies of this booklet, and for invitation cards, address the Field Secretary, Massachusetts State College.

Bulletin

MASSACHUSETTS STATE COLLEGE

COMMENCEMENT

1939

The President's Letter

To Alumni and Friends of Massachusetts State College:

Last year the College marked the seventy-fifth year of its existence with a Diamond Jubilee celebration. This year it starts on a new era of service to the citizens of Massachusetts, and as we begin this new era it gives me special pleasure to extend a cordial invitation to Alumni and friends of the College to attend and have part in our sixty-ninth Commencement Exercises.

This has been a year of planning for the future. This Commencement time may be thought of as a stock-taking period in which Alumni and friends of the College may gather here on Campus to renew their acquaintanceship with the College and their support of its broad purpose.

We are fortunate this year in having as our Commencement speaker His Excellency, Governor Leverett Saltonstall, who is also President of the Board of Trustees. Dr. John C. Schroeder of Yale University will be the Baccalaureate speaker.

There is added interest in this year's Commencement because of the first award of the Bachelor of Arts degree. The conferring of this degree will mark a broadening in the scope of the service of the College to this State. I invite and urge you to come and join with us in the celebration of this, the sixty-ninth Comencement at your Alma Mater.

Cordially yours,
Hugh P. Baker.

The College Pond—At Commencement

Memorial Hall—Alumni Headquarters

Program

FRIDAY, JUNE 9, 1939

2:00 P. M. Annual Spring Horse Show, Riding Park.
8:00 P. M. Flint Oratorical Contest, Memorial Hall.

SATURDAY, JUNE 10, ALUMNI DAY

8:30 A. M. Roister Doister Breakfast, Draper Hall.
0:00 A. M. Annual Meeting, Associate Alumni, Memorial Hall.
2:00 M. Alumni Luncheon and Speaking Program, Drill Hall.
2:45 P. M. Alumni Parade to Ball Game.
3:30 P. M. Varsity Baseball Game with Amherst, Alumni Field.
Following Game — Half Hour Concert on Chime.
6:00 P. M. Fraternity and Class Reunions as arranged by organizations.
9:00 P. M. Roister Doister Play, "Our Town."

SUNDAY, JUNE 11, BACCALAUREATE SUNDAY

9:00 A. M. Academics and Varsity Club Breakfast Meetings, Draper Hall.
1:00 A. M. Fraternity and Class Reunions as arranged by organizations.
4:30 P. M. Baccalaureate Service at Rhododendron Garden.
Address by John C. Schroeder, D. D., LL. D., Yale University.
5:30 P. M. President's Reception at President's House.
8:00 P. M. Concert on the College Chime.
8:30 P. M. Senior Class Day Exercises, Rhododendron Garden.

MONDAY, JUNE 12, CLASS DAY

0:00 A. M. Semi-Annual Meeting of the Board of Trustees.
4:00 P. M. Academic Procession from Fernald Hall.
4:30 P. M. Graduation Exercises, Rhododendron Garden.
Address by His Excellency, Leverett Saltonstall, Governor of the Commonwealth and President of the Board of Trustees.
9:00 P. M. Sophomore-Senior Hop, Drill Hall.

*If weather is inclement this exercise will be held in Bowker Auditorium.
**If weather is inclement these exercises will be held in the Physical Education uilding.

ALUMNI REUNION PROGRAM

SATURDAY, JUNE 10

10:00 A. M. Annual Meeting of the Associate Alumni, Auditorium, Memorial Hall.

12:00 M. Alumni Luncheon (caterer-table service), Drill Hall. Alumni, Alumnae, wives, husbands cordially invited.

1:15 P. M. Alumni Speaking Program, Drill Hall.

2:15 P. M. Concert by the College Band — near Memorial Hall. Alumni who, as undergraduates, played in the Band will join with the students in this concert.

3:00 P. M. Alumni Parade. Parade will start at Memorial Hall.

3:30 P. M. Varsity Baseball Game — Amherst vs Massachusetts State, Alumni Field.

Following the game: A half-hour concert on the chime. Old Chapel.

Class Suppers, fraternity reunions, Roister Doister play.

CLASS REUNIONS

1879 (*60 year class*) George P. Smith, Dr. Roscoe W. Swan, Hiram E. Waldron.

1889 (*50 year class*) Franklin W. Davis, 42 Kenneth St., West Roxbury, Mass.

1894 (*45 year class*) Dr. S. Francis Howard, Norwich University, Northfield, Vermont.

1899 (*40 year class*) Herbert Dana, 80 Boylston St., Boston, Mass. Frederick H. Turner, Great Barrington, Mass.

1904 (*35 year class*) Sumner Parker, Amherst, Mass. Parkman Staples, Perkinsville, Vermont.

1909 (*30 year class*) S. S. Crossman, 12 James St., Greenfield, Mass.

1914 (*25 year class*) Ed Hazen, North Amherst, Mass. Leon E. Smith, 94 Eliot Ave., West Newton, Mass. Harold J. Morse, Hatfield, Mass.

1919 (*20 year class*) The committee: Edward A. White, R.F.D., Manville, Rhode Island. Willard K. French, 10 Brownell St., Worcester, Mass. Wilbert D. Field, R.F.D., Box 131, Canton, Mass.

1924 (*15 year class*) Edward L. Bike, 126 Wyoming Ave., Melrose, Mass. Albert E. Waugh, Storrs, Conn.

1929 (*10 year class*) Dennis M. Crowley, 140 Manthorne Road, West Roxbury, Mass. Clifton Johnson, 465 Congress St., Portland, Maine. John R. Kay, 42 Winthrop Ave., Reading, Mass.

1934 (*5 year class*) Wilho Frigard, Amherst, Mass., and 1934 committee.

1936 (*3 year class*) Calvin Hannum, Amherst, Mass.

1938 (*1 year class*) Ruth Wood, 8 Cross St., Wellesley, Mass. Fred Sievers, Amherst, Mass.

Alumnae Tea — Old Chapel, Seminar Room, 4 o'clock, Saturday afternoon, June 10.

ALUMNI REGISTRATION HEADQUARTERS, MEMORIAL HALL.

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Bulletin

MASSACHUSETTS STATE COLLEGE

STOCKBRIDGE SCHOOL OF AGRICULTURE

1939-1940

"No other human occupation opens so wide a field for the profitable and agreeable combination of labor with cultivated thought, as agriculture. I know nothing so pleasant to the mind as the discovery of anything that is at once new and valuable—nothing that so lightens and sweetens toil as the hopeful pursuit of such discovery. And how vast and how varied a field is agriculture for such discovery. The mind, already trained to thought in the country school or higher school, cannot fail to find there an exhaustless source of enjoyment. Every blade of grass is a study; and to produce two where there was but one is both a profit and a pleasure. And not grass alone; but soils, seeds, and seasons; hedges, ditches, and fences; draining, drouths, and irrigation; plowing, hoeing and harrowing; reaping, mowing and threshing; saving crops, pests of crops, diseases of crops, and what will prevent or cure them; implements, utensils, and machines, their relative merits, and to improve them; hogs, horses, and cattle; sheep, goats, and poultry; trees, shrubs, fruits, plants, and flowers; the thousand things of which these are specimens—each a world of study within itself."

— ABRAHAM LINCOLN —

From address at Wisconsin State Fair,
Milwaukee, Wisconsin, September 30, 1859.

NOTE: Lincoln signed the Morrill Act making possible all Land-Grant Colleges in this country, of which we are an honored member.

Bulletin
MASSACHUSETTS STATE COLLEGE

Stockbridge School of Agriculture
1939-1940

The two year course in practical agriculture at Massachusetts State College is known as The Stockbridge School, named after an early President of the College. Included herein are descriptions of the various courses offered, information concerning expenses, enrolment, regulations, etc. On the last two pages will be found forms for application and certificate of citizenship.

The College reserves, for itself and its departments, the right to withdraw or change the announcements made in its catalogue.

STATE COLLEGE BULLETIN
Amherst, Massachusetts

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CALENDAR

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

1939

October 2, Monday ..... Freshman Registratio
October 3, Tuesday ..... Senior Registratio
October 4, Wednesday ..... Senior Intelligence Tes
October 5, Thursday ..... First semester begins for Freshmen and Senio
October 12, Thursday ..... Holiday, Columbus Da
November 11, Saturday ..... Holiday, Armistice Da
November 29-December 4, Wednesday, 12:00m.-Monday, 8:00 a.m. ..... Thanksgiving Rece
December 16-January 2, Saturday, 12:00m.-Tuesday, 8:00 a.m. ..... Christmas Rece

1940

January 27-31, Saturday-Wednesday ..... Final Examinatio
January 31, Wednesday, 5:00 p.m. ..... First semester en
February 5, Monday, 8:00 a.m. ..... Second semester begi
February 22, Thursday ..... Holiday, Washington's Birthd
March 2, Saturday ..... Placement begins for first year Poultry Majo
March 23-April 1, Saturday, 12:00 m.-Monday, 8:00 a.m. ..... Easter Vacati
March 23, Saturday..Placement begins for all other first year courses excepting "Hotel" majo
April 19, Friday ..... Holiday, Patriot's D
May 25-28, Saturday-Tuesday ..... Final Examinatio
May 30, Thursday ..... Holiday, Memorial D
May 31-June 3, Friday-Monday ..... Commenceme
June 3, Monday ..... Placement begins for "Hotel" Majo

THE TRUSTEES

Organization of 1939

Members of the Board

	Term Expir
John F. Gannon of Pittsfield	19
Davis R. Dewey of Cambridge	19
Joseph W. Bartlett of Boston	19
Philip F. Whitmore of Sunderland	19
John Chandler of Sterling Junction	19
Frederick D. Griggs of Springfield	19
Nathaniel I. Bowditch of Framingham	19
William C. Monahan of Framingham	19
James T. Cassidy of Boston	19
Mrs. Elizabeth L. McNamara of Cambridge	19
Mrs. Katherine G. Canavan of Amherst	19
Joseph B. Ely of Westfield	19
Clifford C. Hubbard of Norton	19
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Hugh P. Baker, *President of the College*
Walter F. Downey, *Commissioner of Education*
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"We Will Keep Faith With You Who Lie Asleep."

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Assistant Professor RANSOM C. PACKARD
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Assistant Professor CHARLES H. THAYER
Instructor WALTER A. MACLINN

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Assistant Professor of Poultry Husbandry

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Physical Director for Women

LYLE L. BLUNDELL, B.S. ..... 38 North Prospect Stre
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Instructor in Home Economics

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Assistant Professor of Botany

LLEWELLYN L. DERBY ..... 395 North Pleasant Stre
Assistant Professor of Physical Education

LAWRENCE S. DICKINSON, M.S. ..... 28 Farview W
Assistant Professor in charge of section in Agrostology

CLYDE W. DOW, M. S. ..... North Amhe
Instructor in English

CHARLES N. DUBOIS, M.A. ..... Montague Ro
Instructor in English

M. EUGENE ENSMINGER, M.A. ..... 31 Mount Pleasa
Assistant Professor of Animal Husbandry

JOHN N. EVERSON, M.S. ..... 1063 North Pleasant Stre
Instructor in Agronomy

RICHARD C. FOLEY, M.S. ..... The Camp
Assistant Professor of Animal Husbandry

JULIUS H. FRANDSEN, M.S.A. ..... 59 Lincoln Aven
Professor of Dairying and Head of Department

ARTHUR P. FRENCH, M.S. ..... 22 Harris Stre
Professor of Pomology and Plant Breeding

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Director of Placement Training

MARGARET HAMLIN, B.A. ..... 76 North East Str
Placement Officer for Women

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Instructor in Agricultural Economics and Farm Management

CURRY S. HICKS, B.Pd., M.Ed. ..... 139 Sunset Aver
Professor of Physical Education and Head of the Division of Physical Education

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Professor of Forestry and Head of Department

S. CHURCH HUBBARD ..... 123 Pine Str
Assistant Professor of Floriculture

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Instructor in Agronomy

WALTER O. JOHNSON, B.S. ..... Draper Hall
Manager of Dining Hall

HELEN KNOWLTON, A.M. ..... 76 North East Street
Associate Professor of Home Economics

WILLIAM H. LACHMAN, M.S. ..... 93 Fearing Street
Instructor in Vegetable Gardening

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Professor of Veterinary Science and Head of Department

HARRY G. LINDQUIST, M.S. ..... 47 Fearing Street
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Instructor in Agricultural Engineering

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Professor of Poultry Husbandry and Head of Department

CLARENCE H. PARSONS, M.S. ..... The Campus
Asistant Professor of Animal Husbandry and Superintendent of Farm

GEORGE F. PUSHEE ..... 1147 North Pleasant Street
Instructor in Agricultural Engineering

ERNEST J. RADCLIFFE, M.D. ..... 67 Butterfield Terrace
Professor of Hygiene and Head of Department of Student Health

ARNOLD D. RHODES, M.F. .....
Instructor in Forestry

VICTOR A. RICE, M.Agr. ..... 104 Northampton Road
Professor of Animal Husbandry and Head of Department, Head of Division of Agriculture

T. HARRY RICH, M.F. ..... 24 South Prospect Street
Assistant Professor of Forestry

OLIVER C. ROBERTS, B.S. ..... 24 Nutting Avenue
Assistant Professor of Pomology

JOSEPH R. ROGERS, JR. ..... 57 High Street
Instructor in Swimming

DONALD E. ROSS, B.S. ..... 72 East Pleasant Street
Instructor in Floriculture and Greenhouse Foreman

WILLIAM C. SANCTUARY, M.S. ..... 19 Allen Street
Professor of Poultry Husbandry

FRANK R. SHAW, Ph.D. ..... 484 North Pleasant Street
Instructor in Entomology and Beekeeping

IDNA L. SKINNER, M.A. ..... 95 Butterfield Terrace
Professor of Home Economics, Head of Division, Adviser of Women

HAROLD W. SMART, LL.B. ..... 87 Butterfield Terrace
Assistant Professor of Business Law

GRANT B. SNYDER, M.S. ..... 1146 North Pleasant Street
Professor of Vegetable Gardening and Head of Department

HARVEY L. SWEETMAN, Ph.D. ..... Montague Road
Assistant Professor of Entomology

WILLIAM H. TAGUE, B.S. ..... 536 Main Street
Assistant Professor of Agricultural Engineering

CHARLES H. THAYER ..... South East Street
Assistant Professor of Agronomy

CLARK L. THAYER, B.S. ..... 36 Mount Pleasant
Professor of Floriculture and Head of Department

MARGARET R. THOROMAN, A.B., M.D. ..... The Infirmary
Assistant Professor of Hygiene

EMIL J. TRAMPOSCH, B.S. ..... 22 Phillips Street
Instructor in Horticulture

REUBEN E. TRIPPENSEE, Ph.D. ..... 9 Chestnut Street
Professor of Wildlife Management

ELDEN P. TUTTLE, M.S. ..... 7 Old Town Road
Assistant Professor of Vegetable Gardening

RALPH A. VAN METER, Ph.D. ..... 167 Montague Road
Professor of Pomology and Head of Department, Head of Division of Horticulture

HENRY VANROEKEL, D.V.M., Ph.D. ..... 47 Hallock Street
Chief of Laboratory, Poultry Disease Control

C. LELAND VARLEY, M.A. ..... 44 North Prospect Street
Instructor in English

JOHN H. VONDELL ..... 80 Fearing Street
Instructor in Poultry Husbandry and Foreman of Poultry Plant

HERBERT E. WARFEL, M.S. ..... North Amherst
Assistant Professor of Zoology

THE STOCKBRIDGE SCHOOL OF AGRICULTURE

A Two-Year Course in Practical Agriculture

The Stockbridge School of Agriculture, organized in 1918, is a separat and distinct department of the College providing training of a strictl vocational type in the fields of agriculture and horticulture.

Nine programs of study are offered, one of which must be selected b each student and completed as specified for the school diploma. Th present list of offerings includes:

Division of Agriculture

1. *Animal Husbandry . . . . . (see page 18)
2. *Dairy Manufactures . . . . . (" " 21)
3. *Hotel Stewarding . . . . . (" " 24)
4. Poultry Husbandry . . . . . (" " 28)

Division of Horticulture

1. Floriculture . . . . . (" " 32)
2. Fruit Growing . . . . . (" " 34)
3. Ornamental Horticulture . . . . (" " 37)
4. Vegetable Gardening . . . . (" " 39)
5. *Wildlife Management . . . . (" " 41)

* Limited enrolment

Since its organization at the request of the Massachusetts Legislatur the school has registered over 2,500 students, graduated twenty classe numbering more than 1,600 members, and enrolled for the last scho year (1938-39) 311 young men and women.

The largest number of students come from Massachusetts, but all th New England States are usually represented in the student body.

The value of this kind of concentrated, technical schooling, aimin directly toward preparation for a definite field of work, is amply demo strated by the useful careers of our graduates.

General Information

Entrance Conditions:—The school program is open to any stude who is seventeen years old or over and who has completed at least a elementary school course or its equivalent. There are no entran examinations.

The Stockbridge School of Agriculture is not intended for studen already enrolled in high schools. Such students should finish the hig school course if possible. Students in high schools who wish to take th course should bring a statement either from the principal of the hig school or from the parent or guardian, indicating the reasons for su a change.

A graduate of a Massachusetts county school of agriculture or of a agricultural department of a high school in this state, may complete th course for a diploma in one year, if he is recommended by the director the school or the agricultural instructor. He must show a satisfacto record of practical experience and training which can be accepted place of the first year Stockbridge program. This arrangement cann apply to the Wildlife and Hotel Stewarding programs and rarely Horticulture and Dairy Manufactures. Excessive enrolments in Anim Husbandry and Dairy Manufactures (1938) beyond capacity of prese teaching staff, laboratories, and placement service to handle effectivel forces limited classes of 35 and 25 respectively, in these two major su jects for October 1939. Therefore, this plan may not be feasible with a limited courses so designated herein.

How to enrol.—Fill out application blank in back of catalog givi all information requested. Be sure to indicate course you wish to ele Mail this form, with citizenship certificate in back of catalog, to Direct

f Short Courses. If application is accepted you will be notified, and ertificate of citizenship will be kept on file until you register. In Wild- fe Management, selection of applicants for entrance class in October is ıade by Faculty Committee after personal interview in May; in "Hotel" he first twenty applicants are accepted on trial for first semester, with 'aculty Committee's decision as final on students not meeting required tandards; in Animal Husbandry and Dairy Manufactures, restricted lasses require special data as explained on supplementary application heet in back of catalog. No fees are required until registration.

Registration.—Registration will be held in Memorial Hall on Mon- ay, October 2, for freshmen, and Tuesday, October 3, for seniors. All reshmen students should be on campus from the day of registration ntil classes open on Thursday to meet required appointments for mental ests, physical examinations, and individual photographs for office ecords, and to have class schedules and individual programs explained.

Limited Courses.—Failure to complete registration on date desig- ated (on school calendar) without notifying this office in advance so hat vacancy can be filled from reserve list, will forfeit any further con- ideration of an approved applicant in a limited enrolment course.

Instruction.—Instruction is given by the college teaching staff nrough classroom teaching, laboratory exercises and practical work. The ork of the classroom is supplemented by demonstration work in the ıboratory, dairy room, greenhouse and stables. It is designed to offer undamental information, and to establish the underlying reasons as well s the special methods employed in the various operations. The advan- ages of the college instructors and the college plant with all its resources re thus made available to young men and women electing this type of raining.

Credit and Diploma.—In order to obtain a diploma a student is ex- ected to have completed satisfactorily all the work called for in the eneral course which he has selected. A student failing to pass the re- uirements of summer placement training, after a suitable job has been ssigned him, is not eligible for graduation until this deficiency is made p, and may not be allowed to enrol for the second year, if the Director f Placement Service considers his record to be unsatisfactory.

Graduation Requirement.—No student will be graduated unless all ills due the college are paid on or before the Wednesday preceding raduation exercises. If paid after that date, and otherwise eligible, he ıay be graduated the following year.

Diplomas and letters of honorable dismissal will be withheld from all tudents who have not paid bills due the College, or legitimate bills due rivate individuals or business concerns.

Attendance at commencement sermon and graduation exercises are equíred of seniors.

Seniors who have borrowed from the Goldthwait Loan Fund will have iplomas retained by the College until they have paid up loans in full.

Scholarship Regulations.—At the close of each semester students re- eive a formal report showing the standings given in the subjects pursued y them.

If a student's semester mark in any subject falls below 60 per cent, he s thereby failed (F) in the subject. He shall be debarred from taking he final examination in that subject and must repeat it with the follow- ng class.

If the average of the semester mark and the final examination is below 50 percent, the student is thereby conditioned (#).

Student grades will be recorded at the end of the seventh week of each emester and again at the end of the semester. The Faculty Committee vill consider all questionable grades after each marking period, and in- tructors will note on grade reports the names of all students whose work s seriously deficient.

When a student's record indicates failures or uniformly poor work, th Faculty Committee may recommend a close supervision of his work b the faculty adviser in his major course, or, if his scholastic grades dis qualify him from further work in the school, he may be asked to with draw at any time.

A first year student who has deficient scholastic work at the end of th first semester in February shall not be eligible for placement trainin until his work meets the required standard.

At the end of any semester a student who has a failure in more tha one subject or is conditioned in more than two subjects may be dismisse

RULES AND REGULATIONS

Absences from Class

(1) No unexcused absences will be allowed from classes. (2) A excuses for absence shall be presented by the student in writing, and, i approved by the Director, an excuse card will be granted to be signed b the instructor. Excuse cards must be returned promptly to the offic when properly signed. (3) Students presenting excuse cards coverin absences are expected to make up all work missed, to the satisfaction o the instructor. (4) Instructors are directed to reduce final grades fiv points for each unexcused absence occurring on a student's record at th end of any semester. **(5) No excuses will be accepted at the Sho Course Office unless presented within two days after the student r turns to classes. (6) Two tardinesses unexcused shall count as on absence. (7) Absences from classes immediately before or after holiday are not allowed except by special permission. (8) The Sho Course Office requires all students to report at once any illness to th college physician, particularly if absence from class is likely to resu from the illness. (9) Students failing to observe these rules are place on probation, and may be asked to withdraw from the course if furthe violations occur.**

Absences from Examinations or Tests

(1) Any student who absents himself from an appointed examinatio without sufficient cause shall be given zero thereon. In such case he sha not be entitled to a make-up examination unless the Director so request A previously announced test may, at the discretion of the instructor, b regarded as a test or as an examination.

(2) Every absence taken before enrolment (the signing of the regis tration card by the teacher) in a class will be counted.

Student Expenses

Tuition.—A tuition fee of $50 per semester is charged students, res dents of Massachusetts, enrolled in the Stockbridge School of Agr culture. Students who are not residents of Massachusetts are charge a tuition fee of $110 each semester. The tuition per semester, charge persons not citizens of the United States is $110. **Students enterin from Massachusetts, unless of voting age themselves, are required t file a statement signed by either town or city clerk, stating that th applicant's parent is a legal resident of Massachusetts.** (See form i back of catalog.)

The necessary college expenses are estimated as follows: Tuition, f citizens of Massachusetts, first year, first semester, $50; second semest (eight weeks only) $25, total $75. Second year, first semester, $5 second semester, $50, total $100. Total cost of tuition for full cours $175.

Students not residents of Massachusetts pay $110 tuition fee first yea first semester, and $55 second semester (eight weeks only). Total tuitio first year $165. Second year, $110 each semester, total $220. Total tu tion cost both years, $385.

1939 Graduating Class

Hotel Stewarding Course, First Year, Effective October 1939

Two full semesters instead of one and one-half semesters as heretofor
Tuition $100 for Massachusetts citizens; for out-of-state students $22
Expenses for board, room, and incidentals will be $100 more tha
estimated cost for other major courses listed below.

Other costs are:

	First Year	Second Year	Tota
Room in private houses	$72.00	$96.00	$168.
Board in college cafeteria, weekly ticket 20 meals, $6.00	144.00	192.00	336.
Laundry	20.00	30.00	50.
Books, stationery, etc.	30.00	45.00	75.
Totals	$266.00	$363.00	$629.
College tuition fee for citizens of Massachusetts	75.00	100.00	175.
	$341.00	$463.00	$804.

These figures for board and room are estimates based on prevailir
prices and are subject to change when and if conditions change.

Special Taxes Voted by Students

	First Semester	Secon Semest
College Athletic Tax	$6.75	
(For freshmen, one-half semester)		$3.
(For seniors, full semester)		6.
Collegian Subscription	1.00	
Social Union	1.00	—
United Religious Work	.25	
Stockbridge School Activities	.50	
Stockbridge Class Tax—usually	1.00	1
The Shorthorn—school yearbook		
Freshmen	2.00	3.00-4
Seniors	2.00	4.00-5

Tuition fees and special taxes are payable at the Treasurer's Office n
later than one week after date of registration for each semester.

A student who withdraws from college for any reason before a ser
ester is half completed will have refunded to him one-half the fees pa
for that semester, but one who leaves after completing more than th
half semester will be allowed no rebate of fees.

The placement training period between the first and second year us
ally enables a student to earn from $150 to $300 depending upon his sk
and general ability, and the type of work. Of this amount $100 to $2
should be saved to apply to the expenses of the second year.

Prospective students should understand that the above estimates cov
expenses which may be called strictly college expenses, and that there a
other financial obligations voluntarily placed upon students which th
should expect to meet. Chief among these are class assessments and tax
levied for maintenance of various organizations, such as the Social Unio
Athletic Association, weekly publications, etc. Such expenses vary fro
$15 to $30 a year. Additional financial responsibility is also assumed b
students joining clubs or entering into other social activities of the c
lege. Besides the amount necessary for clothes and traveling, t
economical student will probably spend between $300 and $400 for t
first year of one and one-half semesters in residence, and $400 to $5
for the second year of two semesters.

Rooms

Dormitory rooms are available only to students of the four year colle
course. Private homes in the town furnish the only source of rooms f
Stockbridge students.

Rooms are inspected by the student health officer and students a
expected to make their own rooming arrangements from a list of a
proved places available at the Short Course Office.

Board

Stockbridge freshmen are not required to secure meals in College ca
teria, but can do so if more convenient.

A number of public restaurants or dining rooms are located close to the college where most students arrange for meal service, usually approximating $1.00 a day, with allowances made if student goes home on weekends, class schedule permitting.

A new student had best sample the various places to find the one suited to his needs, or where he can meet with congenial members of his class group. This arrangement is entirely a personal affair, like the choice of a room, and the School assumes no direct responsibility for such services in any way.

Books and Supplies

For the convenience of students the College maintains a store service in North College. Here all textbooks may be purchased at cost plus transportation charges. Students are informed at the first class session in each course what books are required and must secure individual copies according to order list sent in by instructor.

There is little opportunity to secure secondhand books because most students find the texts assigned of value to retain as reference sources after completing a course.

Student Aid

Students desiring any form of financial aid from the college including scholarship, employment, or loan, are required to file applications with the Student Aid Committee not later than June 10 of each year. Incoming freshmen are allowed an extension of time.

These application forms are used to determine the comparative need of the applicants and are passed on by the Student Aid Committee. No student is eligible for any kind of financial assistance from the College unless he or she has filed the required form and has been certified as deserving by the Student Aid Committee. Application forms may be secured at the Placement Service Office, South College.

Self Help.—It is recommended that no new student enter without having at least $250 and preferably $350 with which to meet the expenses of the first year. **The college does not encourage students to enter without money in the expectation of earning their way entirely.** The student will find it better either to work and accumulate money before coming to college, or to take more than two years in completing his course, or, instead, to borrow money sufficient to carry him through. No student should undertake work that interferes with his studies, and students should understand that, owing to the large number of applications for employment, no one may receive a large amount of work at the college. A number of students find opportunities for earning money without depending upon the college to furnish them with work.

First year students should not risk failure in their beginning studies at Stockbridge by taking on such extra work until they have, at least, tested themselves in the study program of the first semester. Certainly, it is advised to proceed cautiously in combining both extra work and athletics at the same time, if your scholastic record is at all questionable.

The Vincent Goldthwait Loan Fund.—This fund was established by Dr. Joel E. Goldthwait, M. S. C. 1885, of Boston, as a memorial to his son who died in 1922 during his junior year at Harvard. Its purpose is to aid worthy senior students who find it absolutely impossible to secure aid from other sources to complete their final year. Only seniors needing emergency supplementary aid in addition to funds already available will be considered. Amounts in excess of $200.00 are rarely granted and most loans range from $50 to $150.00.

A regular promissory note must be executed, endorsed by parent or guardian, and repayment may be made within any reasonable period after graduation up to one year. There is no interest charge.

N.Y.A. Student Employment Projects

The College has been granted student employment funds by the Federal Government since the adoption of the program. The policy of the Federal Administration cannot be predicted, but it is safe to assume that as long as student relief projects are in effect this college will be a participant. The type of work to which students are assigned under N.Y.A. projects consists of the following: Clerical and office, library and museum, laboratory and research assistance, reading and grading papers and all other or miscellaneous types.

In addition to the college projects, community projects are organized consisting of the following types of work: Education, recreation, health and welfare and other miscellaneous types.

The rate of pay is 30 cents per hour. The positions are based on the average earning capacity of $15 per month. During the past college year twelve percent of our students were assigned to positions under this project.

Special consideration is given to new students under these projects for while the general college policy does not encourage the new student to seek employment, one of the conditions under which the College participates in the N.Y.A. projects is that new students receive their pro rata share.

General Exercises

Assembly exercises are held weekly on Wednesdays, 11:00-12:00 M. and serve to bring together all Stockbridge students for a general program dealing with matters of interest to the College and the School. Among speakers who appear from time to time are the President of the College, members of the College staff and occasionally other men who have interesting subjects to present. This weekly assembly also enables announcements concerning students and student affairs to be presented and permits class presidents to make advance reservations for business meetings at least once a month when necessary.

Student Activities

A large number of student organizations furnish opportunity to students for work and leadership.

The Massachusetts State College Social Union was established about fifteen years ago. All students become members of the Union by paying a small fee, and in the fall and winter months the Union gives a series of entertainments, free to students and faculty. Memorial Hall is the center of student activities and contains offices for the various student organizations, including the Stockbridge School Student Council. On the first floor are located a lounging room, the Memorial Room, and the offices; in the basement, bowling alleys, pool and ping pong tables; and on the second floor an auditorium for meetings and dances. This building was erected by the alumni, students, faculty, and friends in honor of the fifty-one "Aggie" men who gave their lives in the World War.

The Stockbridge School Council is composed of representatives of the first and second year classes. This body serves as a general committee of student government and helps to maintain the best traditions and customs of the School.

A student yearbook called "The Shorthorn" is published annually by the members of the graduating class, and is usually issued in June. All students subscribe to it.

For those students who play musical instruments there is some opportunity with the College Orchestra and the College Band.

In the place of fraternities the faculty have authorized social organizations called "clubs" in the Stockbridge School. There are two such organizations in the student body, the A. T. G. Club and the Kolony Klub both owning houses, serving as social and residential centers for their groups.

The College will not allow any member of any Stockbridge Social Club to continue in School if he is reported in arrears by the Club Treasurer at the termination of any semester. Club treasurers are required to file a complete sworn statement, with the Director of Short Courses, pertaining to each member, of all charges and payments for each semester, not later than the closing date of the semester examinations.

A diploma will not be awarded to any senior, if in arrears to either Club at time of graduation. All bills for second semester, senior year, must be settled with the respective Clubs not later than June 1.

Athletics and Physical Education.—The School has its own separate athletic program with regular schedules in football, basketball, ice hockey, cross-country and winter track. Sweaters and insignia are awarded to team members and managers in these sports. The official insignia is the letter S.

The football team plays a schedule of 6 or 7 games with preparatory school teams. The basketball team plays a 10 game schedule; the cross-country team usually runs 3 races, while 2 or 3 meets are scheduled for the winter track squad. Ice hockey affords 6 to 8 games depending on the weather.

Due to the fact that freshmen are on placement training during the spring term which leaves only seniors available, no regular team is maintained in baseball. Men desiring to play are organized into teams and an intramural league is arranged.

This athletic program is entirely under the supervision and direction of the Physical Education Department of the College and coaches are provided for all sports. Instructor Lorin E. Ball, director of the Stockbridge physical education work is coach of football, basketball, and has charge of the spring recreation program. Assistant Professor Llewellyn L. Derby, coach of the varsity track team, has charge of the cross-country and winter track squads.

All students are urged to participate in some sport each semester, but first year students should be sure all studies are well maintained. No squads are reduced by eliminating the inexperienced players and everyone is given an opportunity to play in games. The football squads for the past two years have consisted of approximately 50 candidates. Games have been scheduled for both the second and third teams so that every man on the squad has participated in an outside scheduled game. Both the first and second teams in basketball have regularly scheduled games and an intramural league schedule is arranged for those not playing on the first squad.

Every care is exercised to guard against men overtaxing their strength in any sport or game to the detriment of their health. No man whose physical condition is at all questionable is allowed to play on the teams. A careful check is maintained by required physical examinations for all students given by the college physician at the opening of the school year. A second examination is made of each man before permission is granted to participate in any sport.

Students also subscribe to the college varsity games and have attendance privileges for varsity sports on the campus.

Class work in physical education for men not on athletic squads is required for both seniors and freshmen during the first semester. This consists of 2 class periods a week. The object of this course is to give the men some knowledge of games which may be of value to them in after school days, as well as to give every man an opportunity to develop sufficient control over his body to enable him to get pleasure from physical activities and to establish correct health habits.

The freshmen receive instruction in soft ball, touch football, golf, and swimming. Men may elect football or cross-country, instead of the regular class work. The seniors take up volley ball, badminton, archery, and swimming. They may also elect football or cross-country. The classes are organized into teams which compete against each other with much riv-

alry. Students are expected to wear old clothes during the play period and shower baths are required at the close of each class period.

A physical education building containing a swimming pool, a grea indoor cage 150 by 180 feet for all kinds of sports and games, and com plete locker room and shower bath facilities provide ample equipment t carry out this program. Individual equipment is supplied to all member of the football, hockey, basketball, cross-country, and track squads.

STUDENT RELATIONS

The customary high standard of college men in honor, manliness, self respect, and consideration for the rights of others constitutes the stand ards of student deportment.

Any student known to be guilty of dishonest conduct or persistent vio lation of rules must be reported by the instructor to the Director fo discipline.

The privileges of the college may be withdrawn from any student a any time if such action is deemed advisable.

It should be understood that the college, acting through its Presiden or any administrative officer designated by him, distinctly reserves th right not only to suspend or dismiss students, but also to name condition under which students may remain in the institution. For example, if student is not doing creditable work he may not only be disciplined, bu he may be required to meet certain prescribed conditions in respect t his studies, even though under the foregoing rules his status as a stu dent be not affected. The same provision applies equally to the matter o absences.

Similarly, also, it applies to participation in student activities. Thoug this will ordinarily be governed by the rules as already laid down, yet i in the judgment of the college authorities a student is neglecting hi work on account of these activities, the privilege of participating in ther may be withdrawn for such time as is considered necessary. Moreove it may be withdrawn as a punishment for misconduct.

HEALTH SERVICE

The College endeavors to safeguard the health of all students while o the campus and for this purpose maintains a Department of Studen Health, staffed by two physicians, two resident registered nurses, and group of three Infirmary buildings.

(1) Physical examination by the Health Service is required of all unde graduate students annually, or more often if indicated. This exam ination is given to freshmen during matriculation week. *Evidenc of a* SUCCESSFUL *smallpox vaccination is required.*
(2) The Student Health physicians have offices in the Physical Educa tion Building and in the Out-Patient Building, where they may b consulted during college hours.
(3) The Infirmary consists of three buildings, one for bed patients, on for contagious cases, and one for out-patient cases, where the ou patient clinic is conducted daily by one of the Student Health ph sicians.
(4) Students are urged to consult the resident physicians at the firs sign of physical disorder, or for even minor accidents. Many seve illnesses and much lost time can be avoided by early or preventiv treatment.
(5) A Trustee ruling grants free time in the Infirmary—when necessa for treatment—up to seven days in the school year. This free tim applies to regularly enrolled undergraduate students only. For tim in excess of seven days or for other bed patients, a charge of $2.(per day is made against the patient.
(6) In addition to the charges specified in paragraph 5, the followin additional expenses will be charged to the patient.

(a) *Nurses.*—In case a special nurse is required for the proper care of an individual the services and board of this nurse will be paid by the patient. Such a nurse will be under the general supervision of the resident nurse.

(b) *Professional Service.*—If a student requires continuous medical attention by a physician, he may be required to select a town physician and become responsible for fees charged by that physician.

(c) *Supplies.*—Special medical supplies prescribed by a physician will be charged to the patient.

(d) *Laundry.*—Expense for personal laundry or cleaning incurred by students while in the Infirmary will be charged to the individual student.

GOODELL LIBRARY

This fine new building completed in 1935 houses the College Library. This library contains one of the best collections in agriculture and related sciences in the country, with special strength in entomology, botany, chemistry, horticulture, landscape architecture, soil science and animal husbandry, but with considerable collections, also in literature, history, economics, and sociology. There are over 110,736 bound books, and over 30,000 classified pamphlets giving most recent information. The periodical file contains over 500 current magazines, both scientific and popular, and a careful selection of newspapers, together with many periodical publications of learned societies. The Library is unusually rich in files of journals and publications of Experiment Stations and learned societies. The building is open on week days from 8 A.M. to 10 P.M., and from 1.30 to 4.30 and 7 to 9 P.M. on Sundays during semesters and with somewhat shorter hours during vacations and Summer School.

The building is named in memory of Henry Hill Goodell, President of the College from 1886 to 1904 and College Librarian from 1886 to 1898.

AGRICULTURAL OPPORTUNITIES FOR WOMEN

Agriculture is a field in which women have always found some opportunity. There are women farming independently, in all branches of agriculture. As a rule poultry raising, small fruits and vegetable growing and floriculture, seem to offer women an easier opportunity than dairy, stock and general farming. Women are also finding some paid positions which include farm and estate workers and managers, garden service workers and agricultural officers in state correctional institutions.

For the woman or girl whose home is already upon the farm the opportunity is exceptionally good. With the help of an agricultural education there are open to her many means of increasing her own or the farm income. With the knowledge of farm life which she already possesses, and with the possibility of securing occasional help from her family, she may be able to carry on and develop a profitable enterprise of her own. The Stockbridge School of Agriculture will afford to the women who wish to engage in farming the practical training which they will need to fit them for their work, and will open to them new doors of opportunity. The particular problems which women engaged in farming will have to meet, and the special lines of farming in which they will have favorable opportunities, will be considered in a series of conferences.

Women who are interested in taking agricultural courses should correspond with Miss Margaret Hamlin, Placement Officer for Women.

POSITIONS

The College does not guarantee positions to students registered in any of its courses, but through the Placement Service it has an opportunity to recommend students for a large number of positions. A record is kept of each student's work and experience, and of his success in positions for

which he has been recommended after he has finished his course. Oppor tunities for trained men and women, especially those who have had farm experience, are good.

A student desiring a recommendation from the college must meet th following conditions:—

(1) He must be of good character.
(2) His previous record must be good.
(3) His work in all courses must be satisfactory.

Students who have not previously had a considerable amount of prac tical experience cannot, as a rule, be recommended for positions of re sponsibility. This is especially true of the better positions for whic managers or superintendents are wanted.

VOCATIONAL PLACEMENT

The work of locating first year students for apprentice training fro April to October, after the resident term is completed, is in charge of th Director of Placement Service. Placement training for women student is in charge of Miss Margaret Hamlin of the Placement Office. Ever effort is made to secure satisfactory positions affording the kind of train ing desired by the student, but the Placement Office cannot guarantee t place every student for training, when positions are not available. I normal times placement positions are secured for all students who ar eligible under these conditions.

1. Positions are secured that will enable a student to gain practica experience in his particular vocation.

2. A student desiring placement at home may arrange for such assign ment if the Director of Placement approves. As a rule, it will be foun better for a student to spend this six months away from home eve though he plans to be employed there after finishing the course. Thi statement is based on the experience of students who have already take the course.

3. If credit is to be secured for the six months' placement training th following rules must be carefully observed.

Rules for Stockbridge Students on Placement

1. The student must interview the Director of Placement early in hi first year in order that his qualifications, the type of work he wishes t pursue, and his general fitness may be determined.

2. No final arrangement for placement training may be made by th student himself until the Director of Placement has been consulted.

3. Students are required to complete their period of training withou unnecessary absences.

4. No transfers are to be made by a student if he is to receive credi until permission has been had from the Director of Placement.

5. A position may not be given up by the student until the Director o Placement has been notified.

6. A monthly report must be furnished on the form supplied, an submitted not later than the fifth of each month during his trainin period.

7. A student whose grade of work is regularly poor (below a 70 rat ing) in the classes of his major subject will not be eligible for placemen training, unless recommended by the department in charge of his majo work.

8. When a student fails to complete the requirements of his placemen training with a satisfactory grade, he is not allowed to take the work o the second year.

9. All students are given a thorough physical examination by the De partment of Physical Education at the beginning of each college yea Any disabilities liable to affect the student's placement work are note and, if of a serious nature, recommendations for corrective measures ar

applied. Parents should understand that most kinds of agricultural ork require a well-balanced combination of brawn and brain. No stu- nt whose physical condition is questionable will be accepted for place- ent training without a physician's certificate, and parents' approval.

It should be clearly understood by both employer and employee that the me energy, regularity and general conduct will be expected of the udent during his period of placement training as is expected in his ork in classes and on the campus.

It should also be noted that this six months' experience is educational its nature. Students are expected to earn and receive a reasonable age, but the purpose of the training is the experience gained rather an the wage earned. The scale of wages may vary in different localities, t each man's ability is given very careful thought, that he may obtain wage that is fair to him. In the event of any misunderstanding the pervisor should be immediately informed.

DIVISION OF AGRICULTURE

DESCRIPTION OF COURSES

ANIMAL HUSBANDRY

The Animal Husbandry major fits students to cope with the practi l problems of live stock production and management. It supplements a d supports but does not duplicate or replace the necessary experie e gained only through actual manual work in caring for animals. As a foundation, the study of breed history, live stock trends, animal anato y and physiology is required. Special attention is given to physiologi l processes in breeding and feeding. Later courses show how these p- cesses actually function under the stockman's guidance.

A herd of about 200 dairy cattle including Ayrshires, Guernse , Jerseys, Holsteins and Milking Shorthorns, a band of about a do n Percheron brood mares, a flock of about 60 Southdown and Shropsh e sheep and a herd of about 50 Berkshire and Chester White swi , together with modern barns and equipment for housing and caring r the above live stock, and a farm of several hundred acres used prima y for the production of feed crops, gives ample scope for illustrating a d giving practice in modern methods of live stock handling. The farm a d barns are our laboratory; the animals and accessories our equipment

Graduates from the Animal Husbandry major for the most part sec e positions as herdsmen or farm managers.

Because of overcrowded classrooms and laboratories, beginning w h October 1939, registrations in this course will be strictly limited o thirty-five students each year. Give full details of training and reas s for choosing this work in supplementary application form in back f catalog.

Animal Husbandry

First Year

First Semester

Animal Husbandry S1 (Principles of Feeding)
Bacteriology S1 (Bacteriology and Rural Hygiene)
Business Law S1
Dairy S1 (General Dairying)
Farm Management S3 (Efficiency in Farming Operations)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor, Milking, Harnessing and Teaming. (Practice periods only, by arrangement.)

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Follo d by Six Months Placement Training)
Agricultural Engineering S4 (Farm Shop)
Animal Husbandry S2 (Types and Breeds
Forestry S2 (Introduction to Forestry)
Fruit Growing S10 (General Course)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Physical Education S2 (Required of wom n students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

ricultural Engineering S1 (Farm Motors)
imal Husbandry S3 (Animal Breeding)
imal Husbandry S5 (Farm Meats)
siness English S1
siness Law S1
rm Management S1 (Farm Management and Accounts)
terinary Science S1 (Animal Sanitary Science)
ysical Education S5 (Required of men students not participating in football)

Elective

ysical Education S3 (For women)

Second Semester

Agricultural Engineering S10 (Farm Structures and Drainage)
Agricultural Economics S2 (Marketing)
Animal Husbandry S4 (Live Stock Production)
Animal Husbandry S6 (Dairy Cattle and Milk Production)
Poultry Husbandry S10 (General Course)
Soils and Crops S4 (Field Crops)
Veterinary Science S2 (Applied Animal Sanitary Science)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

NIMAL HUSBANDRY S-1. (Principles of Feeding) I.

A study of the organs of digestion, digestion and absorption of foods; gestibility of feed stuffs; utilization of feed materials in growth, maintnance, fattening, work, and milk production; and the importance of ineral and vitamins. The laboratory period will be devoted to a study feeds and their analyses; feeding standards; and methods of calculatg rations.

All students will be required to enroll for three credits; two lectures id one laboratory each week. In addition, Animal Husbandry majors ill be given a two hour laboratory once each week in general livestock dging for which they will receive one additional credit.

class hours and 1 2-hour laboratory period a week. Credit, 3.
class hours and 2 2-hour laboratory periods a week. Credit, 4.

NIMAL HUSBANDRY S-2. (Types and Breeds) II.

This course considers the origin, history, development, characteristics id distribution of the breeds of cattle, sheep, swine and horses comercially important in the United States. The conditions to which each ass of livestock and each breed seems best adapted will be discussed. aboratory work consists of judging and evaluating as many rings of iry and dual purpose cattle as time permits.

extbook: Vaughan, "Breeds of Livestock in America."

class hours and 1 2-hour laboratory period a week. Credit, 4.

NIMAL HUSBANDRY S-3. (Animal Breeding and Herdbook Study) I.

Includes a study of the physiology of reproduction and of animal netics as well as the art of breeding. Among the topics included are e Origin and Domestication of Farm Animals; Modern Theories of eredity, Variation and Sex Determination; the Systems of Breeding—oss-, Out-, Line-, and Close-Breeding; and the one paramount problem animal breeding, namely, Selection. Considerable pedigree work in the udent's favorite breed is also included. Prerequisites: Animal Husndry S-1 and Animal Husbandry S-2. Textbook: Rice, "Breeding and nprovement of Farm Animals."

class hour and 2 2-hour laboratory periods a week. Credit, 3.

ANIMAL HUSBANDRY S-4. (Live Stock Production) II.

This course includes studies of the production of horses, beef cattle, sheep and swine with emphasis on their place in New England Agriculture. Attention is given to the general situation and outlook, distribution and adaptability of breeds, equipment, feeding, systems of management, management problems, disease control, fitting and showing, and practice in such skills as shearing, docking and castrating. As a part of the laboratory instruction, each student will be assigned animals for fitting and showing in the "Little International" which will be held the third Saturday in March.

A trip to purebred livestock establishments in New York or New England will be required on one weekend during the semester. The cost of transportation will not exceed $5.00.

Prerequisites: Animal Husbandry S1 and Animal Husbandry S2. Textbook: Morrison, "Feeds and Feeding."

3 class hours and 1 2-hour laboratory period a week. Credit, 4.

ANIMAL HUSBANDRY S-5. (Farm Meats) I.

This course includes a survey of the packing industry and follows the product (i. e. beef, pork, lamb and veal) from the feed-lot to the consumer's table. Practice is afforded in classifying animals as to market class and grade and in slaughtering, dressing, cutting and curing beef, pork, lamb and veal. At the end of the course a trip will be taken to several large packing houses in Boston consuming one day and costing about $10.00. Prerequisites: Animal Husbandry S-1, Animal Husbandry S-2. Textbook: Tomhave, "Meat and Meat Products."

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

ANIMAL HUSBANDRY S-6. (Dairy Cattle and Milk Production) II.

For Seniors.—This course treats all phases of dairy cattle production and management. The student is provided with an opportunity to study and seek the solution to the various economic, nutritional, genetic and managerial problems concerned in successful dairying. Lectures will be supplemented with talks by specialists in the various fields. Laboratory will consist of a detailed study of methods used on the college farm, with practice in the various skills necessary for the herdsman or showman.

Trips to purebred livestock farms in the state for the purpose of inspection and advanced dairy cattle judging will be required on five Saturdays during the spring semester. The cost for transportation will not exceed $10.00.

4 2-hour laboratory periods a week. Credit, 4.

Note:—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

DAIRY MANUFACTURES

The Dairy Manufactures course is designed to fit men for positions ith market milk concerns, creameries, ice cream factories, and special- ed dairy farms.

All dairy manufacturing courses are given in the dairy building (Flint aboratory), a modern building designed especially for dairy work. The uilding is equipped with the newest and best types of dairy and cream- y machinery.

The market milk room contains two complete pasteurizing units, a arifier, separator, milk heater, automatic bottle filler and capper, and her necessary equipment for the proper handling of market milk.

The ice cream making room contains a pasteurizing vat, homogenizer, ooler, brine and direct expansion freezers, filling machines, and addi- onal equipment such as is found in a modern ice cream plant.

The room designed for cheese making is equipped with cheese vats, raining racks, presses, mixer, etc. The butter making room has various pes of hand and power churns, workers, scales, and other accessories.

The separator room contains a collection of separators and exhibits of odern equipment and supplies for the dairyman.

The testing laboratories are well equipped with apparatus for the abcock, Mojonnier, and other tests used for the determination of fat, idity, and general cleanliness of milk and milk products.

Because placement jobs are not numerous in the dairy industry and mployment opportunities in this field cannot absorb more than ten to fteen men each year, we are forced to limit registrations in this course r October 1939 to not more than twenty-five registrations. Give full tails of training and reasons for choosing this work in supplementary plication form in back of catalog.

Dairy Manufactures

First Year

First Semester

ricultural Engineering S1 (Farm Motors)
imal Husbandry S1 (Principles of Feeding)
cteriology S1 (Bacteriology and Rural Hy- giene)
siness Law S1
iry S1 (General Dairying)
blic Speaking S1
ils and Crops S7 (General Science)
ricultural Opportunities S1 (Required of women students)
giene S1 (Required of women students)
hysical Education S1
dent Health S3 (Hygiene—required of men students)
actor, Milking, Harnessing and Teaming. (Practice periods only, by arrangement)

Elective

hysical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followed by Six Months Placement Training)
Animal Husbandry S2 (Types and Breeds)
Bacteriology S2 (Continuation of Bacteriology S1)
Dairy S2 (Testing Milk Products)
Horticultural Manufactures S4
Public Speaking S2
Soils and Crops S8 (General Science)
Physical Education S2 (Required of women students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

ricultural Economics S1 (Farm Economic Problems)
siness English S1
siness Management S3
iry S3 (Ice Cream Making, Cheese, and other Milk Products)
terinary Science S1 (Animal Sanitary Sci- ence)
ysical Education S5 (Required of men stu- dents not participating in football)

Elective

ysical Education S3 (For women)

Second Semester

Agricultural Economics S2 (Marketing)
Agricultural Engineering S6 (Dairy Mechan- ics)
Bacteriology S4 (Dairy Bacteriology)
Dairy S4 (Market Milk and Butter Making)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

DAIRY S-1. (General Dairying) I.

This course takes up the question of the importance of dairying in the United States, and especially in the New England States, giving a development of dairying from the earliest to the present time. It covers the secretion, composition, and properties of milk; reasons for variation in the percent in fat in different samples of milk; the Babcock test of fat in milk and other dairy products; other common milk tests; the advantage of testing herds, Herd Improvement Associations, advanced registry work; the handling of market milk; soft cheese making, ice cream making, and butter making as applied to general farm conditions. The laboratory work consists in testing milk and dairy products for butter fat, solids, and acidity, together with some dairy plant experience in milk handling, butter making, cheese making, and ice cream making.
2 class hours and 1 2-hour laboratory period a week. Credit 3.

DAIRY S-2. (Testing Milk Products) II.

In this course a study is made of the common tests used in dairy manufacturing processes.

The lectures in this course include a discussion of the application of tests, what they indicate and their importance in the dairy plant.

The laboratory work consists of a study of the various dairy laboratory tests such as sediment, flavor, and total solids of milk; moisture fat and salt determination in butter; moisture test of cheese; the operation of the Mojonnier tester and the modified Babcock tests for fat in dairy products.

In addition to the testing work students will be required to arrange for work about the plant in order to become familiar with dairy plant practices and the operation of dairy machinery.
1 class hour and 2 2-hour laboratory periods a week. Credit 3.

DAIRY S-3. (Ice Cream Making, Cheese, and Other Milk Products) I

This course deals with the making of ice cream, cheese, condensed, evaporated, and powdered milk.

In that part of the course on ice cream making, a careful study is made of modern methods of manufacturing the common frozen dairy products (ice cream, sherbets, ices, frozen puddings, punches, mousses, etc.)

The lecture work includes a discussion of the history of ice cream making, the ingredients found in ice cream, methods of preparing and standardizing mixes, the freezing process, methods of hardening, marketing and distribution of the finished product.

The laboratory work involves the preparation and standardization of ice cream mixes, the freezing of ice cream and other frozen dairy products, and laboratory tests for butterfat and total solids in ice cream.

In that part of the course dealing with cheese making, a study is made of the different methods of manufacturing hard and soft cheese (cheddar, brick, cream, neufchatel, olive, nut, cottage, cheese spreads, etc.)

In the lectures the manufacture of the different cheeses is considered either from the standpoint of marketing the entire milk supply of the dairy or as an economical means of disposing of surplus milk. In the laboratory work the different kinds of cheese are made.

Lectures are also given on the manufacture of the various concentrated products as sweetened condensed, evaporated and powdered milk, casein, semi-solid buttermilk, dried whey, malted milk, etc.
3 class hours and 3 3-hour laboratory periods a week. Credit 3.

DAIRY S-4. (Market Milk and Butter Making) II.

In that part of the course on market milk, a study of the development of the market milk industry is made. Attention is given to the necessary essentials in producing a high grade milk; the economics of milk production and distribution; food value and uses; the advantages and disadvantages of cooperative milk producers' organizations; the various methods of marketing milk; the transportation, processing and delivery of milk; manufacture and marketing of surplus milk in the form of by-products as cream, cultured buttermilk, chocolate milk, etc.

The laboratory work consists of receiving and making quality tests on milk and the operation of the machinery used in processing market milk. In that part of the course on butter making, the principal factors studied are: methods of separating milk, the history, selection, care and use of separators; the pasteurization and ripening of cream; testing cream for acidity; the making and use of starters; a study of churns and churning; modern methods of making butter; marketing butter; tests for moisture, salt, fat, and curd content of butter.

In addition, trips to dairy farms, and a one-day trip, at an estimated cost $5.00, will be made to city dairy plants.

3 class hours and 3 3-hour laboratory periods a week. Credit, 8.

DAIRY S-6. (General Course for Poultry Majors) II.

This course takes up the importance of dairying in the United States, and especially in the New England States.

Lectures will be given on secretion, composition, and properties of milk, reasons for variation in per cent of butter fat in different samples of milk. The Babcock test for fat in milk, cream, skim milk and buttermilk, the advantages of testing herds, herd improvement associations, advanced registry work; the handling of market milk, soft cheese making, ice cream making, and butter making, as applied to general farm conditions.

The laboratory work consists mainly in testing milk and dairy products for butter fat, solids, and acidity, together with some laboratory work in milk handling, butter making, cheese making, and ice cream making.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

Note:—Every student in this course must qualify in tractor practice, making, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

The pioneer Hotel Stewarding class studies proper preparation of food dishes to insure better knowledge of materials purchased by stewards' departments of hotels, cafeterias, and country inns.

HOTEL STEWARDING

With the increasing importance and development of Massachusetts a her neighboring states as centers of recreation, both winter and summ hotels, inns and restaurants are seeking trained personnel with a kno edge of food commodities, their selection, grades, prices, and preparati This does not mean training skilled cooks or chefs, but rather to giv knowledge of some of the food supply problems handled in the stewar department for dining room and kitchen.

In our various agricultural courses here such information is alrea largely available; that is, in the poultry department all types of poul meats and grades of eggs will be studied; in the dairy department, kinds of dairy products from the raw milk through all the manufact ing stages to butter, cheese, and ice cream.

By vote of the College Trustees in June 1937, authorization was giv for such a course, probably the first one of its kind in any land gra college, since only two other state colleges, New York and Michig offer four-year degree courses in hotel management.

The Massachusetts Hotel Association has actively sponsored the org ization of this course and awarded during the past year a series scholarship loans, aiding several young men recommended, because their interest and ability in the work, by the hotel managers.

Beginning with October 1939, a class of twenty students will accepted instead of ten as heretofore. All students will be on strict tr for the first semester from October to February. Students who fail meet scholastic requirements, who do not show definite aptitude or ness for this highly specialized work, or who are lacking in character a personality qualifications, will be asked to withdraw from the School a cannot continue in the course. The Committee's decision shall be fi in selecting those students who are qualified to register for the work the second semester.

Because hotel placement jobs are not available until June, all stude in this steward's course will continue in resident study at the Sch from April to June, and the placement training period will be *fo months only,* from June to October.

This change makes a tuition increase of $25.00 for Massachuse students and $55.00 for outside students. Board, room, and fees, w increase the second semester cost of the first year by an estimated $1 Prospective students must plan to meet these new and increased charg

Hotel Stewarding

First Year

First Semester

Elementary Foods S1
General Mathematics S1
Horticulture S7 (Care of Plant Materials)
Poultry S9
Public Speaking S1
Soils and Crops S7 (General Science)
Vegetable Gardening S5 (Marketing Pratices)
Hygiene S1 (Required of women students)
Student Health S3 (Hygiene—required of men students)
Physical Education S1 (Required of men students not participating in football; also required of women students)

Second Semester

(Full semester of sixteen weeks followed y four months Placement Training)
Agricultural Engineering S12 (Hotel Equi ment)
Public Speaking S2
Quantity Foods S2 (Preparation and Serv
Soils and Crops S8 (General Science)
Special Lectures S2
Physical Education S2 (Required of wom students

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

counting S1
imal Husbandry S7 (Meats Course)
cteriology S3 (Food Sanitation)
mentary Nutrition S1
uit Growing S11 (Commercial Fruit Growing)
rticultural Manufactures S5 (Food Preservation and Judging)
ysical Education S5 (Required of men students not participating in football)

Elective

ysical Education S3 (For women)

Second Semester

Accounting S2
Business English S2
Dairy S8 (Judging, Testing, and Processing of Milk, Cheese, Butter and Ice Cream)
Entomology S4 (Household Pests)
Horticultural Manufactures S6 (Food Manufacturing, Preservation and Utilization)
Kitchen Administration S2
Meal Planning and Service S2
Special Lectures S4

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

CCOUNTING S-1. I.

This course aims to give the student an elementary working knowledge the principles underlying the accounting system in the gathering, nalysis and interpretation of accounting data, and the methods used in reparing the usual type of business statements. Special problems relating to institution management will be used.

class hour and 2 2-hour laboratory periods a week. Credit, 3.

CCOUNTING S-2. II.

This course is a continuation of Accounting S-1 and will be given the rst half of the second semester.

class hour and 2 2-hour laboratory periods a week. Credit, 3.

GRICULTURAL ENGINEERING S-12. (Hotel Equipment) II.

This course covers the mechanical equipment used in hotel management. It includes a study of refrigerators, cleaning equipment, electric anges, pumps, steam boilers, and miscellaneous steam equipment; and e care and maintenance of electric appliances, including electric motors. ractice will be given in wiring, soldering, and pipe fitting.

class hours and 3 2-hour laboratory periods a week. Credit, 5.

NIMAL HUSBANDRY S-7. (Meats Course) I.

For Seniors in the Hotel Stewarding Course. This course is designed impart a knowledge of the fundamental principles involved in judging, purchasing, and efficiently utilizing meat and meat products. Laboratories will involve actual slaughtering, dressing, wholesale and retail tting, curing and preparation of by-products. Judging practice will be cured in a near by packer cooler and at the end of the course a one day ip will be scheduled to several large packing houses in Boston. ($10.00) extbook Tomhave, "Meat and Meat Products."

class hour and 2 2-hour laboratory periods a week. Credit, 3.

ACTERIOLOGY S-3. (Food Sanitation) I.

This course includes a general study of micro-organisms responsible r the common diseases of man and the methods employed in their detecon and control. It introduces the student to the application of bacteriogical principles in the analysis of water, milk and milk products, and her food substances. Bacteria, molds, and yeasts are studied as living gents responsible for the decay, spoilage and infection of foods. The nportance of the proper control of these living agents in the production nd ripening of certain foods is considered. The conditions necessary for icrobial growth and factors responsible for the universal distribution f micro-organisms are studied. The application of sanitation, chemical reservatives and physical and environmental conditions in the control f food infection or spoilage is discussed and demonstrated.

This course is designed to give students interested in the prac
problems of food sanitation, spoilage, handling, and preservation a be
understanding of bacteria and an appreciation of their importance in
sanitary production and handling of foods.

Laboratory discussions, exercises, and demonstrations.

2 3-hour laboratory periods a week. Credi

DAIRY S-8. (Judging, Testing, and Processing of Milk, Cheese, Bu
and Ice Cream) II.

Work will be given on the importance of dairy products—their cor
sition and food value. A careful study will be made of market grad
what they are and how arrived at. Ample laboratory work will be g
in judging dairy products, to familiarize the student with the var
grades and packs of all dairy products. A special study will be mad
practical tests that can be used in determining quality of milk, of
cream, of cheese, and of butter.

The course will also include a limited amount of practice work in
pasteurizing and processing of market milk, in the making of ice cre
or butter, and of cheese, particularly the soft cheeses, in order to pro
a basis for the more intelligent selection of dairy products.

The course is arranged especially for those interested in foods and
processing as applied to hotel and restaurant work.

During the semester a trip will be made to leading dairy whole
markets in Boston, at an estimated cost of $6.00.

1 class hour and 2 2-hour laboratory periods a week. Credi

ELEMENTARY FOODS S-1. I.

This course aims to teach the basic principles of food preparation
for attractiveness and conservation of nutritive value. It will inclu
study of food materials, foundation recipes, actual preparation of typ
foods. Use will be made of the most recent developments in standard
food preparation.

1 class hour and 2 2-hour laboratory periods a week. Credit

ELEMENTARY NUTRITION S-3. I.

This course is designed to give a general survey of the fundame
principles on which the normal person may plan an adequate dietary.
includes a study of the nutritive value of foods so as to make wise se
tion possible.

2 class hours and 1 2-hour laboratory period a week. Credi

ENTOMOLOGY S-4. (Household Pests) II.

This course will be given the second half of the second semester
the senior year. A brief introduction to the field of entomology will
presented. This will be followed by the studies of the life history, ide
fication, habits, and control measures of the insect pests most likely
be encountered.

1 class hour and 1 2-hour laboratory period a week. Credit

FRUIT GROWING S-11. (Fruits and Fruit Handling) I.

This course is designed primarily for students who are specializing
Hotel Stewarding.

This course includes:

1. A study of the common varieties of native fruits, citrus fruits,
bananas and the season during which each variety is at its best from
standpoint of the consumer.

2. A consideration of the factors which determine the grades of
various fruits.

3. A thorough study of the storage qualities and methods of stor
all fruits commonly used here.

A two-day field trip will be required. Estimated cost, $10.00.

2 class hours and 1 2-hour laboratory period a week. Credit

ENERAL MATHEMATICS S-1. I.

This course provides a thorough drill in those fundamentals which are ed in practical arithmetic, fractions, ratio and proportion, percentage, rmulas of area and volume, graphs, logarithms, and the use of the slide le will be studied.

class hours a week. Credit, 2.

ORTICULTURE S-7. (Care of Plant Materials) I.

This course deals with the care of woody ornamental plants under the llowing heads: planting, pruning, maintenance of soil fertility, winter otection and pest control.

class hours and 1 2-hour laboratory period a week. Credit, 3.

ORTICULTURAL MANUFACTURES S-5. (Food Preservation and Judging) I.

This course is planned to meet the needs of a special group. It will volve: the study of the principles of food preservation, a survey of the ethods of preparation, the judging of finished products and comparison those manufactured in a small way with the common commercial packs.

class hour and 2 2-hour laboratory periods a week. Credit, 3.

ORTICULTURAL MANUFACTURES S-6. (Food Manufacturing, Preservation, and Utilization) II.

This is a continuation of course S-5. Class work will consist of study id reports to the class of phases of the food industry of major interest the student as it may relate to the general interest of the group. The boratory work will consist of manufacture of specialties such as will be lpful to the group and such preservation problems as have not been udied in course 5.

class hour and 2 2-hour laboratory periods a week. Credit, 3.

ITCHEN ADMINISTRATION S-2. II.

This course will be given during the second half of the second semester uring the senior year. The course will be a general study of the vari- us problems arising in the operation of a commercial kitchen. Attention ill be given to the planning and equipment of kitchens, food control and sts, and personnel problems.

class hours a week. Credit, 3.

EAL PLANNING AND SERVICE S-2. II.

This course will be given during the first half of the second semester uring the senior year. This course is a study of the fundamental prin- ples of meal planning and table service. The laboratory work will nclude demonstrations of table appointments, actual meal preparation nd serving.

class hours and 1 2-hour laboratory period a week. Credit, 3.

OULTRY HUSBANDRY S-9. I.

This course covers candling and grading of eggs, market classification, study of eggs in the local markets, dressing poultry and various ways f preparing poultry for the table. Prices and market operations form an ctive part of the course. A trip is required to a nearby city market.

class hour and 1 2-hour laboratory period a week. Credit, 2.

UANTITY FOODS S-2. (Preparation and Service) II.

This course is planned to give the student an insight into the problems f the kitchen department of the hotel, restaurant or club. Students will e apprenticed to the regular employees at the college dining hall and ill assist the cooks, baker, stock clerk, etc., during the laboratory eriods. The course is planned so that each student will have the oppor- unity to do actual work in quantity food preparation and service.

Required: Laboratory fee to cover spoilage $5.00. Cook's hat 25c. Rental of coat and apron, estimated 25c a week.

class hours and 2 4-hour laboratory periods a week. Credit, 7.

SOILS AND CROPS S-7 and S-8. (General Science) I. II.

This is a course in applied sciences, chiefly in the fields of chemist and physics, as they are tools serving the needs of the dairy indust In general, the course is designed to give an introduction to scienti thought and phenomena by means of lectures, textbook study and cla room demonstrations. The emphasis is entirely built around the practi problems in the student's field of work. Specifically, this is a surv course given to Dairy Manufactures and Hotel Stewarding majors.
2 class hours and 1 2-hour laboratory period a week. Credit,

SPECIAL LECTURES S-2 and S-4. II.

Registration restricted to Hotel Stewarding students. These lectur will be presented twice weekly by men within the hotel and restaura industry and allied professions and by members of the college facult They will cover a variety of subjects all of which will be of interest a value to young people planning to enter the hotel and restaurant busine
2 class hours a week. Credit,

VEGETABLE GARDENING S-5. (Marketing Practices) I.

A study of the various factors concerned with the harvesting and ma keting of vegetable produce, including grades, packs, packages, branc and inspection requirements. The Department of Agricultural Economi will present material covering transportation, markets and marketi principles.
3 class hours a week. Credit,

POULTRY HUSBANDRY

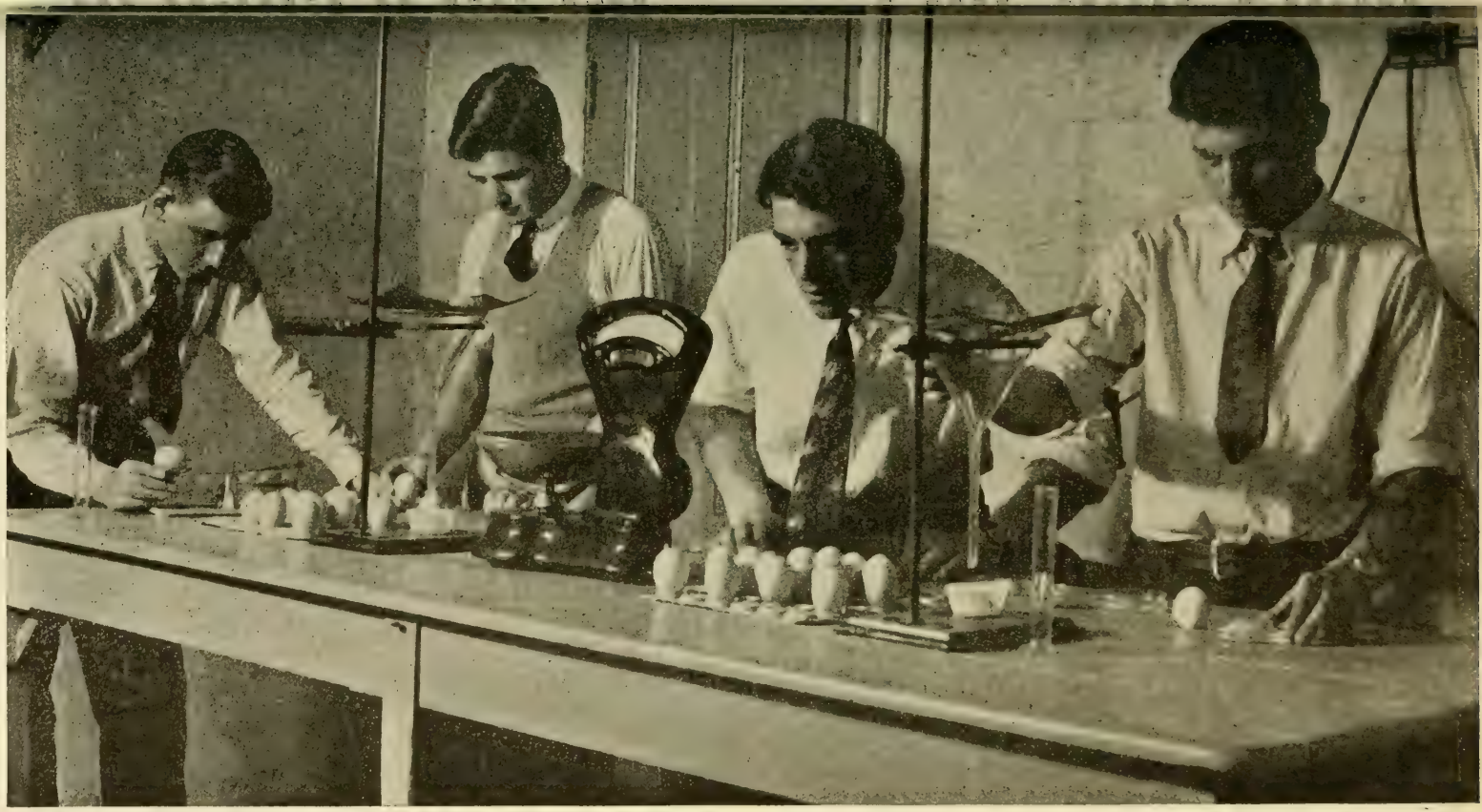
Eight courses are offered by this department. One is a general cour designed particularly to equip the student with fundamental princip underlying successful poultry raising as related to the farm flock. Th other seven courses are for students who desire to specialize in poult culture.

There is a broad field of opportunity for adequately trained men the commercial handling of poultry and sale of poultry products, specia ists in incubation, brooding and rearing, and assistants or managers commercial poultry farms. Good profits and wages await well-equipp men and women in these and other branches of poultry work.

This department is well equipped to offer practical instruction in pou try husbandry. Our quarters and equipment in Stockbridge Hall provi ample facilities for efficient classroom and laboratory teaching.

Our practical laboratory (college poultry plant) comprises classroon and laboratories, about 1,500 adult birds, divided into some 40 pens various designs, the flocks ranging in size from 10 to 250 birds; sever lamp incubators as well as five mammoth machines; brooding and rea ing facilities for 5,000 chicks, including many styles of coal, oil, woo and electric brooders and chick batteries, also four types of cages f laying hens; facilities for practice in breeding, feeding, fattening, killin picking, candling and grading eggs, caponizing, judging, mixing ration construction of poultry houses and appliances, etc.

In addition to the actual practice work performed, the student has a opportunity to keep under observation practical experiments and demo strations continually under way for the instruction of students ar practical poultry keepers.



Egg Quality Studies in Poultry Husbandry

Poultry Husbandry

First Year

First Semester

Bacteriology S1 (Bacteriology and Rural Hygiene)
Business Law S1
Poultry Husbandry S1 (Judging and Housing)
Poultry Husbandry S3 (Feeding)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor, Milking, Harnessing and Teaming (Practice periods only, by arrangement.)

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Four Weeks Resident Instruction Follow by Six Months Placement Training)
Dairy S6 (General Course)
Poultry Husbandry S2 (Incubating and Bro ing)
Poultry Husbandry S4 (Practice Work)
Public Speaking S2
Physical Education S2 (Required of wom students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Economics S1 (Farm Economic Problems)
Agricultural Engineering S3 (Farm Shop)
Fruit Growing S9 (General Course)
Poultry Husbandry S5 (Marketing)
Poultry Husbandry S7 (Breeding)
Veterinary Science S1 (Animal Sanitary Science)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Agricultural Economics S2 (Marketing)
Agricultural Engineering S2 (Farm Motors
Agricultural Engineering S8 (Farm Str tures)
Business English S2
Farm Management S2 (Farm Management and Accounts)
Poultry Husbandry S8 (Management and Specialties)
Vegetable Gardening S10 (General Course)
Veterinary Science S2 (Applied Animal Sa tary Science)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

POULTRY HUSBANDRY S-1 (Judging and Housing) I.

This course embraces a study of the various economically importa types of breeds of domestic fowl, judging for egg production capacit and for exhibition quality. A visit to Storrs egg laying contest may l required. This course also covers the principles and practices of construc ing and equipping houses on a commercial poultry farm. A few trips nearby poultry plants may be taken to study poultry house ventilatio Two hours for judging; two hours for housing.

2 class hours and 2 2-hour laboratory periods a week. Credit,

POULTRY HUSBANDRY S-2. (Incubating and Brooding) II.

A study of incubation and brooding is made by means of the operatic of standard incubators and brooders and through a consideration of bas principles. Students select and grade hatching eggs, operate small inc bators and observe mammoth incubators for a period of time. Unde supervision each student has charge of a brood of chicks.

The incubation part of the course will consist of three class hours, or laboratory period and one practice period, and will run parallel to th brooding part which will consist of two class hours, one laboratory perio and one practice hour.

5 class hours; 2 2-hour laboratory periods and the equivalent of 2 2-hou laboratory periods in incubation and brooding practice. (7 days a week. Credit,

POULTRY HUSBANDRY S-3. (Feeding) I.

A study of the common poultry feeds, feeding principles and successful commercial farm practices. Suitable rations for specific purposes are calculated.

class hours and 1 2-hour laboratory period a week. Credit, 3.

POULTRY HUSBANDRY S-4. (Practice Work) II.

Practice work in candling, packing eggs, killing, pedigreeing, shipping chicks and other similar seasonal jobs is required. Skill in each task will have to be acquired for credit in this course.

The equivalent of 2 2-hour laboratory periods a week. Credit, 2.

POULTRY HUSBANDRY S-5. (Marketing) I.

A study of preparing eggs and poultry products to meet the requirements of the northeastern markets. Grades, prices and reports are studied in conjunction with different marketing methods. The laboratories are designed to cover the field of practical grading, internal study, handling and packing of eggs as well as selection, fattening and killing and dressing poultry by the latest approved methods.

class hour and 1 2-hour laboratory period a week. Credit, 2.

POULTRY HUSBANDRY S-7. (Breeding) I.

This course includes the study of the improvement of poultry by means of mass selection, cockerel progeny, flock improvement, and pedigree methods of breeding. Students follow through each step of a pedigree hatch and assist in the selection of the breeders used at the college plant. Basic principles of heredity necessary for an understanding of good breeding practices are studied. A visit to Genetics Laboratory at Storrs, Connecticut, may be required.

class hours and 1 2-hour laboratory period a week. Credit, 4.

POULTRY HUSBANDRY S-8. (Management and Specialties) II.

In this course the following points are given special attention: lines upon which a well-organized poultry farm is developed, the general arrangement of plots and buildings, record keeping, accounting and advertising, and a study of surveys. A trip covering three or more days will be made to representative successful poultry farms. The expense per student is approximately $15-$20. This is required of each student taking the course for credit. One hour's credit will be devoted to the specialties, such as turkeys, ducks, etc.

class hours and the equivalent of 1 2-hour laboratory period a week. Credit, 4.

POULTRY HUSBANDRY S-10. (General Poultry Husbandry) II.

Poultry keeping as a national industry; its importance and geographical distribution; opportunities and possibilities in poultry culture in Massachusetts; principles of feeding; utility classification of fowl; incubation; the production of hatching eggs; the baby chick industry; and brooding and rearing. Practical exercises will be closely correlated with the study of breeds and varieties, various types of incubators, brooders, brooder-houses, etc. "Practical Poultry Management" by Rice and Botsford will be used as a text.

class hours and 1 2-hour laboratory period a week. Credit, 3.

Note.—Students who take course 10 must get permission from the Poultry Department to take advanced poultry courses.

Note.—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

DIVISION OF HORTICULTURE

FLORICULTURE

Students who complete the course in Floriculture are fitted primari for work in commercial and private estate greenhouse establishments ar retail flower stores. After gaining experience such students may be ab to start in business for themselves. With the courses in Ornament Horticulture they should also be qualified for positions on private estate in parks, or in nurseries.

The offices and class rooms of the Department of Floriculture ar located in French Hall. Of the two lecture rooms, one will accommoda 40 students, the other 90 students; a laboratory, equipped with slat covered tables, will accommodate 40 students. In the basement of th building the department has a specially prepared room for bulb storag a fertilizer and tool room, and a large room for general storage purpose

The glass area of the department consists of approximately 20,0(square feet, divided as follows: French Hall, range of 7,200 square fee a durable, practical commercial range, composed of palm and fern, swe pea, carnation, rose and students' houses; the old Durfee range of 7,4(square feet, devoted to the growing of decorative, conservatory and be ding plants, and chrysanthemums; one house of 3,200 square feet suitab for propagating work and general plant culture; and approximatel 2,200 square feet in cold frames and hotbeds.

In addition the department has land for summer culture of carnation gladioli, dahlias, annuals and bedding plants, a perennial garden, an iri garden, and a rose garden.

Floriculture

First Year

First Semester

Business Law S1
Floriculture S1 (Garden Materials)
Floriculture S3 (Greenhouse Construction and Heating)
Horticulture S1 (Plant Materials)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Vegetable Gardening S1 (Principles of Vegetable Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene required of men students)
Power Lawn Mower, Tractor, Teaming and Harnessing (Practice periods only, by arrangement)

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followe by Six Months Placement Training)
Entomology S2 (Insects of Ornamental Tree Shrubs, and Flowers)
Floriculture S2 (Greenhouse Management an Propagation)
Forestry S2 (Introduction to Forestry)
Horticulture S2 (Plant Propagation)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Vegetable Gardening S2 (Principles of Vege table Culture)
Physical Education S2 (Required of womer students.)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S3 (Farm Shop)
Business Management S1 (Fundamentals of Business Management)
Floriculture S5 (Commercial Production)
Floriculture S7 (Flower Arrangement)
Fruit Growing S7 (Small Fruits)
Horticulture S7 (Care of Plant Materials)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Business English S2
Floriculture S6 (Commercial Production)
Floriculture S8 (The Uses of Herbaceous Plants)
Floriculture S10 (Conservatory Plants)
Horticulture S6 (Plant Materials)
Vegetable Gardening S4 (Vegetable Forcing)

Electives

Physical Education S4 (For women)
Physical Education S4 (Baseball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

FLORICULTURE S-1. (Garden Materials) I.

This course is intended for students who will take up private estate work or who will specialize in floriculture. It will include a study of the annuals, biennials, herbaceous perennials, and bedding plants which are commonly used in commercial floriculture and in private estate work. Methods of propagation, culture and uses will be considered. Laboratory exercises will include work in propagation, planting, study of materials, and planning of beds and borders.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

FLORICULTURE S-2. (Greenhouse Management and Propagation) II.

A study of the principles of greenhouse management including the consideration of soils, fertilizers, watering, ventilation, temperature regulation, insect and disease control. The methods of propagation of florists' crops will be taken up in detail.
3 class hours and 1 2-hour laboratory period a week. Credit, 4.

FLORICULTURE S-3. (Greenhouse Construction and Heating) I.

This course will take up the origin, growth, and importance of the floriculture industry, development of the greenhouse, types of houses and construction, and methods of greenhouse heating. Trips may be taken to visit greenhouse establishments in the vicinity of Amherst.
1 class hour and 1 2-hour laboratory period a week. Credit, 2.

FLORICULTURE S-5. (Commercial Production) I.

Courses S-5 and S-6 will be devoted to a consideration of the important commercial crops. Special attention will be given to the culture (under glass) of roses, carnations, chrysanthemums, violets, and sweet peas. Other cutflower crops and various potted plants will also be considered. All members of the class are required to take a one-day trip to visit a large commercial greenhouse establishment at an approximate cost of five dollars each. Textbooks required during the two courses will be: Holmes, "Commercial Rose Culture"; and Smith, "Chrysanthemum Manual."
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

FLORICULTURE S-6. (Commercial Production) II.

A continuation of Floriculture S-5.
2 class hours and 1 2-hour laboratory period a week. Credit, 3.

FLORICULTURE S-7. (Flower Arrangement) I.

A study of the principles underlying the use of flowers in funeral designs and sprays, table decorations, corsages, vase, bowl and basket arrangements; decorations for public functions; study of color with regard to such work. Limited to students who are majoring in floriculture. Textbooks: White, "Principles of Flower Arrangement"; Harry, "Manual of Floral Designing."
1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

FLORICULTURE S-8. (The Uses of Herbaceous Plants) II.

This course is a continuation of Floriculture S-1 and is intended for students specializing in floriculture and ornamental horticulture. It provides opportunity for a more detailed study of many of the plants considered in the preceding course with special emphasis on their uses in gardens and in other types of landscape planting. Lectures, assigned readings, study and identification of plants, planning of borders and gardens.
2 class hours and 1 4-hour laboratory period a week. Credit, 4.

FLORICULTURE S-10. (Conservatory Plants) II.

A study of the plants, both foliage and flowering, which are used in conservatories and in decorative work. Methods of propagation, culture,

uses and identification of plants will be included in the course. Trips ma be taken to visit the conservatories at Smith and Mount Holyoke college 1 class hour and 1 2-hour laboratory period a week. Credit, 2

Note:—Every student must qualify in tractor practice; and in har nessing and teaming, single and double. Arrangements for practic periods and examinations by special assignment. No student will be pu on placement training who has not satisfied these preliminary require ments.

Practice in operating power lawn mower equipment will be require of all men students.

FRUIT GROWING

This course is arranged to give the student a sound practical know edge of fruit growing and allied subjects. Graduates who are capable an experienced have advanced rapidly to positions of responsibility in som of the larger orchards of New England, and the demand is active fo good men in that field.

Some graduates of this course have gone into business for themselve establishing successful orchards of their own, or pruning, spraying an otherwise caring for a number of small orchards, the owners of whic are not prepared to do their own work. Still others are packing hous foremen or are engaged in some other marketing activity. The frui growing industry of New England is an important one and there ar opportunities for good men who are well trained.

Practical work in the orchards under expert supervision is emphasize where possible. It is intended to familiarize students with the bes methods that have been devised by experiment stations and leading frui growers for the production and marketing of high-quality fruits unde New England conditions. The Department of Pomology has about fift acres of fruits easily accessible from the classroom, and the orchards ar used freely for purposes of instruction. All the common tree fruits an small fruits are grown here on a commercial scale. Many experiment and demonstrations are in progress in the plantations, offering an ex ceptional opportunity to the student.

The Department also has a thoroughly up-to-date storage and packin house, in which are several types of refrigerated and common storag rooms, fruit sizing machines, and other modern equipment.

A good equipment is maintained of the principal types of orchard tool and machines, including sprayers, plows, harrows, cultivators, tracto pruning saws, shears, etc., for study and trial by students.

Fruit Growing

First Year

First Semester

Agricultural Engineering S1 (Farm Motors)
Forestry S3 (Forest Estimating and Mapping)
Fruit Growing S1 (Growing Tree Fruits)
Fruit Growing S3 (Varieties)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Vegetable Gardening S1 (Principles of Vege table Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor, Teaming and Harnessing (Practice periods only, by arrangement)

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followe by Six Months Placement Training)
Agricultural Engineering S14 (Repair of Farm Equipment)
Fruit Growing S2 (Orchard and Vineyar Pruning)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Vegetable Gardening S2 (Principles of Veg table Culture)
Physical Education S2 (Required of wome students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

gricultural Economics S1 (Farm Economic Problems)
gricultural Engineering S9 (Drainage and Farm Structures)
eekeeping S1 (Fall Management, Wintering and Honey Marketing)
usiness English S1
ruit Growing S5 (Harvesting, Packing, Storage and Marketing)
ruit Growing S7 (Small Fruits)
orticultural Manufactures S1
hysical Education S5 (Required of men students not participating in football)

Elective

hysical Education S3 (For women)

Second Semester

Agricultural Economics S2 (Marketing)
Beekeeping S2 (Spring Management, Pollination and Honey Production)
Farm Management S2 (Farm Management and Accounts)
Fruit Growing S4 (Fruit Pests and Spraying)
Fruit Growing S6 (Advanced Fruit Growing)
Poultry Husbandry S10 (General Poultry Husbandry)
Vegetable Gardening S8 (Commercial Vegetable Culture)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

'RUIT GROWING S-1. (Growing Tree Fruits) I.

This course covers the field of orchard planting and development, and he management of bearing plantations to produce fruit of high quality. ites and soils for plantations of apples, pears, peaches, plums, and cher- ies are discussed along with the best methods of setting trees to insure good start. The handling of young trees to bring them into early rofitable bearing is given special attention.

The culture of bearing orchards is studied in detail to give an under- tanding of the factors that influence yield and quality of fruit. Methods f soil management are discussed with reference to their advantages and mitations. The experimental plots afford exceptional opportunities to tudy cultural methods and many subjects are discussed in the orchards. class hours a week. Credit, 3.

'RUIT GROWING S-2. (Orchard and Vineyard Pruning) II.

This course aims to give the student a thorough training in the theory nd practice of pruning apples, pears, peaches, cherries, plums and rapes. The bearing habit of each fruit is studied as a basis for effective runing. Practice pruning in the College orchard is stressed as an im- ortant feature of the course.

Instruction and practice in budding and grafting are included in this ourse in connection with the propagation of fruit trees. Bridge grafting nd top working are given special attention.

class hour and 2 2-hour laboratory periods a week. Credit, 3.

'RUIT GROWING S-3. (Varieties) I.

The purpose of this course is to acquaint the student with the im- ortant varieties of tree and small fruits and their value in commercial lanting. Small fruits ripening in summer are frozen and stored to make hem available for class use in winter. An important part of the course s the selection of fruit for exhibition purposes, and practice in judging. 2-hour laboratory periods a week. Credit, 2.

'RUIT GROWING S-4. (Fruit Pests and Spraying) II.

This course deals with the development of insect and disease pests, and articular attention is given to the vulnerable points in their life cycles t which control measures are directed. It also considers the principal pray materials and each student is given practice in their application.

The department is well equipped with modern spraying apparatus, from ucket pumps to large power outfits, and students are required to study he construction of these pumps and to operate them in the orchards. class hours and 1 2-hour laboratory period a week. Credit, 3.

'RUIT GROWING S-5. (Harvesting, Packing, Storage, and Marketing) I.

Handling the crop from tree to consumer is the field covered by this ourse. Methods of harvesting and appliances used are studied in the

orchards. Practice in packing the most popular containers forms a prom inent part of the laboratory work.

The principles of common and refrigerated storage are considered i detail and storage house construction is discussed, with a critical exam ination of several storages in use on or near the campus. Marketing methods are given special consideration as they relate both to distan and to local markets. A two-day field trip will be required. Estimate cost, $10.00

2 class hours and 1 2-hour laboratory period a week. Credit, 3

FRUIT GROWING S-6. (Advanced Fruit Growing) II.

This course involves a critical study of tree behavior as a basis fo orchard management. Information acquired in other courses and in place ment training is brought to bear on important orchard problems. It i the aim of the course to familiarize the student with conditions unde which fruit must be grown here, with current thought on the more recen developments, and with adjustments which are being made in the frui industry of the Northeastern States.

Each student must be prepared to take one or more trips to prominen orchards or to leading fruit sections of the Northeast. This will involv some expense.

2 class hours and 1 2-hour laboratory period a week. Credit, 3

FRUIT GROWING S-7. (Small Fruits) I.

While orcharding will always be the leading phase of fruit growing i Massachusetts, there are many unusual opportunities for success i growing the various small fruits. This course deals with problems o establishing and managing plantations of strawberries, raspberries, blackberries, blueberries, currants, and grapes.

The college has plantations of these fruits, so the student has ampl opportunity for a wide range of practical work. The aim is to make th course of the utmost practical value, as well as to give the scientific principles on which practices are based.

2 class hours a week. Credit, 2

FRUIT GROWING S-9. (General Course) I.

This course is intended to meet the needs of students in other major who cannot devote more than one semester to the subject of Fruit Grow ing. It deals with the practical side of growing and marketing fruits Special attention is given to such questions as selection of sites, choic of varieties, grafting, spraying, pruning, soil management, harvesting packing and marketing. (Floriculture, Horticulture, and Poultry Majors).

2 class hours and 1 2-hour laboratory period a week. Credit, 3

FRUIT GROWING S-10. (General Course) II.

This course is a repetition of Fruit Growing S-9 primarily for th benefit of first year students who are specializing in Animal Husbandry

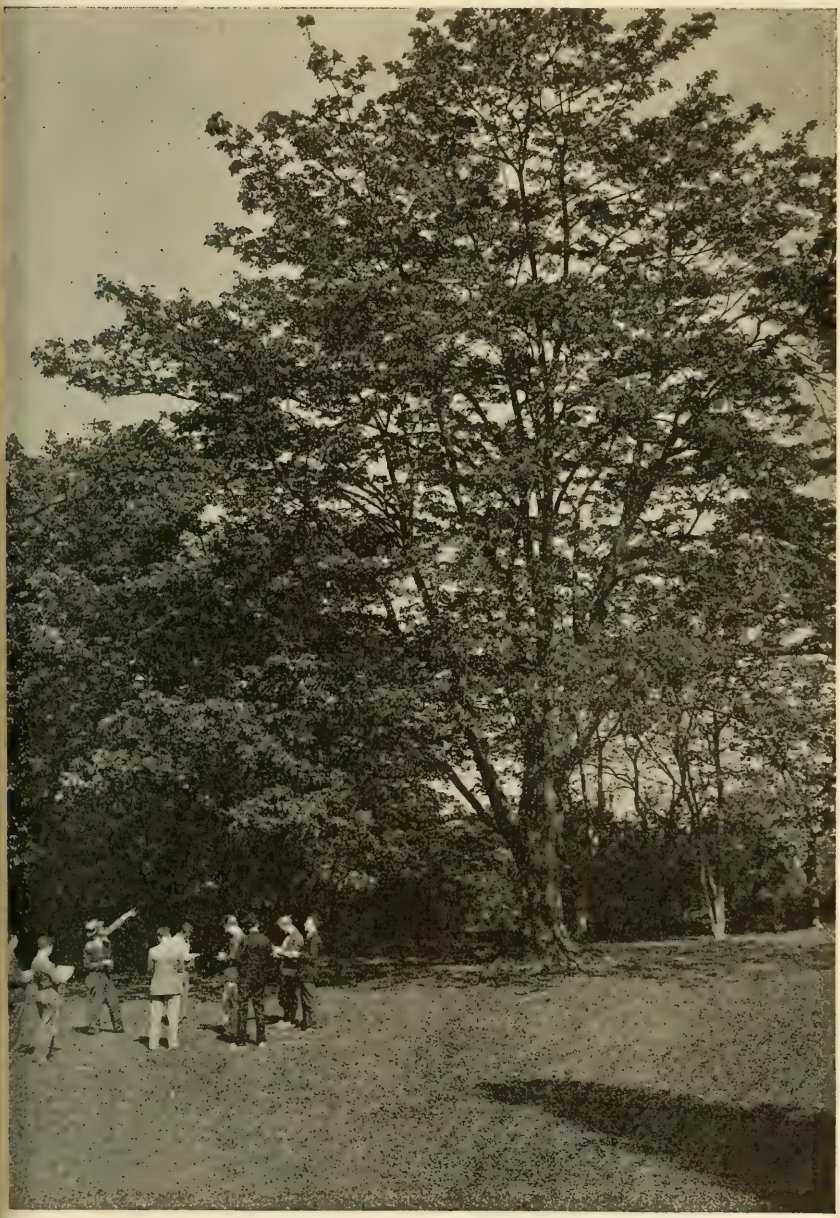
4 class hours and 1 2-hour laboratory period a week. Credit, 5

Note:—Every student in this course must qualify in tractor practice milking, harnessing, and teaming, single and double. Arrangements fo practice periods and examinations by special assignment. No student wil be put in placement training who has not satisfied these preliminary requirements.

ORNAMENTAL HORTICULTURE

The constantly increasing interest in development of grounds, both ublic and private, for use and enjoyment, has created a demand for men ained to handle the varied problems in the construction and mainten- nce of these grounds. The course in Ornamental Horticulture aims to ake the student familiar with these various problems.

Men who have taken this course are to be found in such different fields s foremen in nurseries, or proprietors of nurseries which they them- lves have built up; superintendents on private estates, cemeteries,



Getting Acquainted With the Historic Trees on the Campus

parks, and various public and private institution grounds; foremen fo landscape construction firms, and some have developed their own bus: ness in landscape construction and grounds maintenance service.

With the whole campus as a laboratory, the student every day find problems about him comparable to those he will meet when he goes ou to work. The broad lawns, the walks and drives, the gardens, the greer houses, the orchards, the vegetable plots, as well as the farms, supply a the various phases of work which will be encountered on estates, i parks, or in institution grounds. As far as practicable the student i given the opportunity to determine what these problems are and to solv them himself under expert supervision.

On the campus is to be found a large and excellent collection of matur trees, shrubs, and vines. From these plants the student is able to buil up a background of plant knowledge; in identification; in propagatio which is carried on in a special greenhouse for the purpose; in th handling of plants in various stages of their growth, in the nursery an on the campus; and in their ultimate care, pruning and protection agains injuries of all kinds. Construction of roads, walks, drainage and othe problems involving the moving of earth are especially valuable to thos looking forward to landscape construction.

The courses in forestry are designed to give practical instruction in th elements of forest care and management with special reference to th problems that will be faced by one who is given the responsibility o managing farm or estate woodland. The necessary phases of fores measurement, silviculture and forest protection are included. Field work carried out on the college forest of 755 acres at Mt. Toby, takes the forr of demonstrations and practical field problems in forest care and manage ment. Students in these courses work to a considerable extent unde actual field conditions.

Ornamental Horticulture

First Year

First Semester

Business Law S1
Floriculture S1 (Garden Materials)
Horticulture S1 (Plant Materials)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Soils and Crops S5 (Construction and Maintenance of Fine Turf Areas)
Vegetable Gardening S1 (Principles of Vegetable Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Power lawn mower, Tractor, Teaming and Harnessing (Practice periods only, by arrangement)

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Followe by Six Months Placement Training)
Botany S2 (Diseases of Trees and Shrubs)
Entomology S2 (Insects of Ornamental Trees Shrubs, and Flowers)
Forestry S2 (Introduction to Forestry)
Horticulture S2 (Plant Propagation)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Vegetable Gardening S2 (Principles of Veg table Culture)
Physical Education S2 (Required of wome students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S3 (Farm Shop)
Business English S1
Forestry S3 (Forest Estimating and Mapping)
Fruit Growing S9 (General Course)
Horticulture S3 (Surveying and Mapping)
Horticulture S7 (Care of Plant Materials)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Agricultural Engineering S2 (Farm Motors)
Floriculture S8 (The Uses of Herbaceous Plants)
Forestry S4 (Forest Production)
Horticulture S4 (Landscape Construction Problems)
Horticulture S6 (Plant Materials)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

HORTICULTURE S-1. (Plant Materials) I.

Study of evergreen and deciduous trees used in landscape work, their distinguishing characters, and culture, with special reference to nursery and planting practice.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

HORTICULTURE S-2. (Plant Propagation) II .

This course will present the principles of plant propagation with special reference to their application to plant materials in nursery and greenhouse practice. The lectures are concerned with careful explanations of seedage, cuttage, graftage, layerage and division. In the laboratory the student propagates plants by each of these methods.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

HORTICULTURE S-3. (Surveying and Mapping) I.

Practice in the use of simple surveying instruments as tapes, compasses and levels used in the measurement of land surfaces, and the application of these instruments in landscape construction.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

HORTICULTURE S-4. (Landscape Construction Problems) II.

Continuation of Horticulture S-3, including the reading of landscape plans, figuring construction cost on grading work and garden construction problems, and setting stakes for landscape development from working drawings.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

HORTICULTURE S-6. (Plant Materials) II.

Study of shrubs, both evergreen and deciduous, and woody vines, to enable the student to recognize the plants used in ornamental plantings and to familiarize him with the handling of these plants both in nursery practice and landscape work.

1 class hour and 2 2-hour laboratory periods a week. Credit, 3.

HORTICULTURE S-7. (Care of Plant Materials) I.

This course deals with the care of woody ornamental plants under the following heads: planting, pruning, maintenance of soil fertility, winter protection and pest control.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

EXCURSION.—For Horticulture S-6, a two-day field trip about May 20th, will be required. Estimated cost, $10.00.

Note.—Every student must qualify in tractor practice, power lawn mower operation, and in harnessing and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put on placement training who has not satisfied these preliminary requirements.

VEGETABLE GARDENING

Students who complete the course in Vegetable Gardening are fitted to go into commercial work as greenhouse vegetable growers, market gardeners, truck farmers and seed growers. Responsible positions are also open as gardeners on private estates, state and private institutions, as assistants with seed concerns and with retail and wholesale marketing companies.

The vegetable industry is an important vocation in New England and the opportunities are excellent in the various phases of the business for good men or women who are well trained. The Department of Vegetable Gardning is well equipped to give thorough training in that ample class and laboratory rooms are available plus 3,500 square feet of modern greenhouse space and approximately 500 linear feet of hot and cold frames. More than 10 acres of land is also utilized in the production of vegetable crops on a commercial and demonstrational basis including a

variety trial plot in which more than 1,000 varieties are grown annual
Equipment of the most modern type is maintained for study and u
The office, class and laboratory rooms are located in French Hall.

Vegetable Gardening
First Year

First Semester

Floriculture S1 (Garden Materials)
Floriculture S3 (Greenhouse Construction and Heating)
Fruit Growing S1 (Growing Tree Fruits)
Public Speaking S1
Soils and Crops S1 (Soil Management)
Vegetable Gardening S1 (Principles of Vegetable Culture)
Agricultural Opportunities S1 (Required of women students)
Hygiene S1 (Required of women students)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor, Teaming and Harnessing (Practice periods only, by arrangement)

Elective

*Physical Education S1 is required of men students not participating in football; also required of women students.

Second Semester

(Eight Weeks Resident Instruction Follo by Six Months Placement Training)
Floriculture S2 (Greenhouse Management Propagation)
Fruit Growing S2 (Orchard and Viney Pruning)
Public Speaking S2
Soils and Crops S2 (Fertilizers)
Vegetable Gardening S2 (Principles of Ve table Culture)
Vegetable Gardening S6 (Diseases, Inse and Their Control)
Physical Education S2 (Required of wome students)

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S9 (Drainage and Farm Structures)
Beekeeping S1 (Fall Management, Wintering, and Honey Marketing)
Business English S1
Fruit Growing S7 (Small Fruits)
Horticultural Manufactures S1
Vegetable Gardening S3 (Systematic Vegetable Gardening)
Vegetable Gardening S5 (Market Practices)
Physical Education S5 (Required of men students not participating in football)

Elective

Physical Education S3 (For women)

Second Semester

Beekeeping S2 (Spring Management, Pollin tion, and Honey Production)
Farm Management S2 (Farm Manageme and Accounts)
Fruit Growing S4 (Fruit Pests and Spra ing)
Horticultural Manufactures S2
OR
Poultry S10 (General Course)
Vegetable Gardening S4 (Vegetable Forcin
Vegetable Gardening S8 (Commercial Veg table Culture)

Electives

Physical Education S4 (For women)
Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

VEGETABLE GARDENING S-1. (Principles of Vegetable Culture) I.

Lecture periods are devoted to discussions covering certain funda mental principles of plant structure and growth as they influence an regulate commercial vegetable culture. The work in the laboratory in cludes detailed studies in seedage, plant growing, manures and fertilizer garden planting, pests, storage and marketing.
2 class hours and 1 2-hour laboratory period a week. Credit, 3

VEGETABLE GARDENING S-2. (Principles of Vegetable Culture) II.

Lectures are devoted to discussion of the more important factors o soil and climate which regulate plant growth and reproduction. The lab oratory studies are planned in such a manner that the factors discusse in lecture are definitely applied to specific vegetable or horticultural cro plants.
3 class hours and 1 2-hour laboratory period a week. Credit, 4

VEGETABLE GARDENING S-3. (Systematic Vegetable Gardening) I.

This course is designed to acquaint the student with the identificatio nomenclature and classification of the standard types and varieties o vegetables; judging and exhibiting; seed production and variety improve ment work.
1 class hour and 2 2-hour laboratory periods a week. Credit, 3

VEGETABLE GARDENING S-4. (Vegetable Forcing) II.

A study of (1) the geographical distribution of the greenhouse industry and the part this phase of vegetable production plays in supplying our markets with fresh vegetables, (2) the principles of culture, harvesting and marketing of those vegetables commonly grown as commercial crops under glass, (3) growing early plants in frames and plant houses for home and retail purposes.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

VEGETABLE GARDENING S-5. (Marketing Practices) I.

A study of the various factors concerned with the harvesting and marketing of vegetable produce, including grades, packs, packages, brands, and inspection requirements. The Department of Agricultural Economics will present material covering transportation, markets and marketing principles.

3 class hours a week. Credit, 3.

VEGETABLE GARDENING S-6. (Diseases, Insects and Their Control) II.

This course is intended to give those students majoring in vegetable gardening an understanding of the more common insects and diseases which attack vegetable plants and the most satisfactory methods for controlling these pests.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4

VEGETABLE GARDENING S-8. (Commercial Vegetable Culture) II.

Commercial problems and practices are studied in detail including seedage, planting, tools and machinery, nutrition, harvesting, marketing and management. Organized trips to market gardening sections are required covering a period of approximately three days and costing the individual student about fifteen dollars.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

VEGETABLE GARDENING S-10. (General Course) II.

This course is designed to meet the needs of students in other majors who cannot devote more than one semester to a study of vegetable gardening. Attention is to be given to starting plants early, transplanting, seeding, fertilizing, spraying, dusting, harvesting, marketing, and storing the more important vegetable crops.

2 class hours and 1 2-hour laboratory period a week. Credit, 3.

Note.—Every student in this course must qualify in tractor practice, milking, harnessing, and teaming, single and double. Arrangements for practice periods and examinations by special assignment. No student will be put in placement training who has not satisfied these preliminary requirements.

WILDLIFE MANAGEMENT

Increased interest in the recreational use of our land areas opens a broad field in the Management of Wildlife. The dovetailing of game crop into farming and forestry creates a need for the services of the vocationally trained man with the right enthusiasm for wildlife and its conservation.

Men who take this course are required to pursue studies in agriculture, forestry, zoology, and allied subjects. Familiarity with forest and stream, the agriculture of the region, and the intermingling wildlife is gained by practical field work on Mt. Toby Forest, a demonstrational and research area of 755 acres owned by the College, and on surrounding areas.

Although the course of study offered is primarily vocational, students must develop a technical mind. A natural bent for scientific investigation is quite as important as enthusiasm. In vocational work of this nature covering such a broad field and utilizing so many economic forces, one must be trained not only to observe but to reason as well. The work is interesting to those qualified to pursue it, but calls for students who are

mentally alert and capable of maintaining a high standard of work. On this type of man is desired and will be accepted.

This course will be limited at present to ten students. Placemen employment is confined almost solely to the State Department of Co servation, Division of Fisheries and Game, and most jobs are on gan farms, fish hatcheries, stream surveys, and wildlife sanctuaries. The ra of pay is $2.00 a day which barely meets living expenses and allows litt opportunity for saving towards the second year costs. Students shou clearly understand this course presents the poorest placement earnin opportunities of any of the major programs.

Because of limited size of class, all entrance applications will be car fully examined by a special faculty committee and, in case of any questio on information supplied, applicants may be requested to report in perso for interview.

Students in both the first and second years of the Wildlife course ar required to attend a two-day session of the New England Game Confe ence which takes place during January or February each year in Bos ton. They must attend and report upon all sessions of the conferenc The approximate cost of this trip is ten dollars.

Wildlife Management

First Year

First Semester

Agricultural Engineering S1 (Farm Motors)
Breeding and Propagation S5
Forestry S5 (Animal Identification)
Forestry S7 (Introduction to Forestry)
Forestry S9 (Wildlife Food Plants)
Public Speaking S1
Soils and Crops S1 (Soil Management)
*Physical Education S1
Student Health S3 (Hygiene—required of men students)
Tractor Practice

Elective

*Physical Education is required of men students not participating in football.

Second Semester

(Eight Weeks Resident Instruction Followe by Six Months Placement Training)
Breeding and Propagation S6
Ecology S2
Forestry S6 (Field Practice)
Forestry S8 (Forest Measurement)
Public Speaking S2

Elective

Physical Education S4 (Basketball and Hockey)

Second Year

First Semester

Agricultural Engineering S3 (Farm Shop)
Forestry S27 (Silviculture)
Forestry S29 (Field Problems)
General Biology S21
Principles of Conservation Law S25
Physical Education S5 (Required of men students not participating in football)

Second Semester

Business English S2
Diseases and Predators S26
Fish Culture S24
Forestry S28 (Forest Management and Use)
Forestry S30 (Special Problems)

Electives

Physical Education S4 (Basketball and Hockey)
Physical Education S6 (Baseball)
Rural Literature S2

BREEDING AND PROPAGATION S-5. I.

Anatomical and physiological relationships, age, sex and vigor determinations in birds; breeding principles and practices, housing and shelter principles and practices, feeding principles and practices, management of mature stock. A trip to the State Game Farm at Wilbraham will be required.

Students will care for the game birds at the poultry plant during two week intervals throughout the school year as part of their training.
3 class hours and 1 2-hour laboratory period a week. Credit, 4.

BREEDING AND PROPAGATION S-6. II.

A study of the basic principles of successful incubation, brooding and rearing. Students will select hatching eggs, regulate and operate small and mammoth incubators, regulate and operate various types of brooders with chicks.
2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

DISEASES AND PREDATORS S-26. II.

In order to conserve animal life a knowledge of the causes and the nature of death is necessary. The general scope of this course includes health disturbances and mortality in game animals due to disease producing agents and predators; also, the mechanism of the disease process and mode of death, along with corrective measures which will conserve animal health and life.

2 class hours a week. Credit, 3.

ECOLOGY S-2. II.

Stresses the importance of physical factors, temperature, humidity, light, air currents, etc., to living things. Includes methods of measuring and evaluating these factors where game is concerned. (Elementary physical geography, meteorology.)

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

FISH CULTURE S-24. II.

A course is designed to set forth the principles of fish culture for both stream and pond species. Methods of propagation, equipment and its use, water requirements, nutritional requirements and feeding methods, habitat evaluation and stocking policies will be considered. Field trips to hatcheries and nearby streams and ponds are required.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

FORESTRY S-5. (Animal Identification) I.

Identification of the principal species of the fauna of Northeastern North America and a study of the life history of each. Includes the reading of field signs indicating animal abundance under natural conditions.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4.

FORESTRY S-6. (Field Practice) II.

A discussion of the various field procedures for the determination of values of habitats for wildlife production. Field work includes a food and cover survey and the writing of a plan for the management of a specific area of wild land.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

FORESTRY S-7. (Introduction to Forestry) I.

The nature of a forest and the roles played by the several natural factors which enter into its composition and life history. The forest characteristics of our native tree species. Forestry, what it is and what it aims to accomplish. Forest types, their occurrence, recognition and importance. The field work includes a problem in forest type mapping which requires the practical application of the companion class room material.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

FORESTRY S-8. (Forest Measurement) II.

Methods of determining the volume and value of the forest growing stock. The measurement of annual and periodic growth in timber volume. Field work includes a detailed timber inventory of the forest area mapped during the first semester.

2 class hours and 1 4-hour laboratory period a week. Credit, 4.

FORESTRY S-9. (Wildlife Food Plants) I.

Knowledge of forest plants that produce food materials valuable in maintaining game birds and mammals is essential to every student of Wildlife Management.

This course is designed to familiarize the student with such vegetation, both native and introduced species. Stress is laid upon systematic identification of the material and upon game food values.

2 2-hour laboratory periods a week. Credit, 2.

FORESTRY S-27. (Silviculture) I.

Silvicultural systems used to secure natural forest reproduction; the intermediate cuttings for the culture of the forest; seeding and planting in northeastern forest practice. Systematic practice in the selection of trees for removal in both the intermediate and reproduction cuttings.

One field trip costing about $1.50 per student is required.

1 class hours and 1 4-hour laboratory period a week. Credit, 4.

FORESTRY S-28. (Forest Management and Use) II.

The elements of forest working plans. The location and construction of forest improvements for better forest use and protection. Practical work in forest planning and the preparation of descriptive reports.

One field trip costing approximately $1.50 per student is required.

1 class hours and 1 4-hour laboratory period a week. Credit, 4.

FORESTRY S-29. (Field Problems) I.

The students will be required to become acquainted with the information available on the common game animals and to write a summary of the life history and ecology of these forms. Class work will include discussions of the basic principles of game management.

1 class hours a week. Credit, 3.

FORESTRY S-30. (Special Problems) II.

A continuation of Forestry S-29. Each student will be required to gather material and write a report on a field problem related to game management.

1 class hours a week. Credit, 3.

GENERAL BIOLOGY S-21. I.

A course designed to bring together the threads of biological knowledge previously acquired. Deals with the principles of animal organization, physiology, development, and adaptation. Disease-producing organisms and other harmful animals are stressed, and a review of the types of the principal phyla is included.

2 class hours and 2 2-hour laboratory periods a week. Credit, 4

PRINCIPLES OF CONSERVATION LAW S-25. I.

These lectures relate to the principles underlying the fish and game and general conservation laws. They will be given by a visiting lecturer from the State Department of Conservation. The number of lecture hours will vary from 7 to 12. Lecture schedule by arrangement. No credit.

SOILS AND CROPS S-1. (Soil Management) I.

A course in the relation of the soil to natural cover and to the production of cultivated plants. Soil management as regards moisture control, tillage, organic matter and acidity will be studied.

The laboratory work will include training in the use and interpretation of the maps of the U. S. Soil Survey, and in testing soil for texture, organic matter and acidity.

Students will be required to make a study of some suitable area, and report on the soil conditions as related to wildlife management.

2 class hours and 1 3-hour laboratory period a week. Credit, 3.

RELATED SUBJECTS IN OTHER DEPARTMENTS

Instruction in agricultural economics is given with a view toward presenting the business side, or economics of agriculture. The required course is divided into two parts given in separate semesters. The approximate division of subject matter for each semester is indicated below.

AGRICULTURAL ECONOMICS S-1. (Farm Economic Problems) I.

The purpose of this course is to introduce students to the more important economic problems facing New England farmers. Increasing

competition with other farm sections, long-time movements of far prices and farm profits, farm credit, farm taxation, tariffs and oth farm relief measures are some of the problems to be considered.

2 class hours a week. Credit,

AGRICULTURAL ECONOMICS S-2. (Marketing) II.

This course deals largely with economic problems arising out of ma keting farm products. Particular attention is given to marketing metho used in New England and to the comparison of local methods with met ods used by farmers in competing sections. Principles and methods co-operative marketing used by successful co-operative associations a studied in detail in order to show how New England farmers may me competition from associations in other sections, either as individual pr ducers or as officers or members of local associations.

2 class hours a week. Credit,

AGRICULTURAL ENGINEERING S-1 and S-2. (Farm Motors) I. II.

This course is a study of the principles of the gasoline engine and i accessories, as used in trucks, automobiles, tractors, and stationary wor Instruction is given in the laboratory by lectures, demonstrations, ar exercises. Shop experience is given by overhauling machines brought for repair. This course also deals with the application of electricity agriculture including electric wiring.

3 2-hour laboratory periods a week. Credit,

AGRICULTURAL ENGINEERING S-3 and S-4. (Farm Shop) I. II.

This course gives instruction in the care and use of carpenters' too through bench work, repair of farm equipment, and building constru tion. Practice in building forms, mixing and placing concrete, framin cutting rafters, etc., make up this portion of the subject. Instruction i forging, pipe fitting, soldering, and the use of machinists' tools for th repair of farm machinery and miscellaneous farm equipment, togeth with a study of pumps and water supply systems make up the other po tion of the work.

3 2-hour laboratory periods a week. Credit,

AGRICULTURAL ENGINEERING S-6. (Dairy Mechanics) II.

This course is planned for men who are fitting themselves to tak charge of dairy plants or allied lines of work. It includes a study c steam boilers, pumps, steam traps, water filters and softeners, beltin electric motors, milking machines, and refrigeration plants.

2 class hours and 1 2-hour laboratory period a week. Credit,

AGRICULTURAL ENGINEERING S-8. (Farm Structures) II.

A study of building materials; details of construction; simple stru tural mechanics; and the principles of design applied to farm buildin is made. Each student will design in detail one of the major farm buil ings in which he is particularly interested.

1 class hour and 2 2-hour laboratory periods a week. Credit,

AGRICULTURAL ENGINEERING S-9 and S-10. (Farm Structures and Drai age) I. II.

A study of building materials; details of construction; simple stru tural mechanics; and the principles of design applied to farm buildin is made. Each student will design in detail one of the major farm buil ings in which he is particularly interested.

About one-fourth of the time will be given to the study of land drai age and practice in the use of the engineer's level for the purpose o laying out and grading of drainage ditches.

1 class hour and 3 2-hour laboratory periods a week. Credit,

GRICULTURAL ENGINEERING S-14. (Repair of Farm Equipment) II.

Instruction is given in forging, pipe fitting, soldering, and the use of achinists' tools for the repair of farm machinery and miscellaneous arm equipment, together with a study of pumps and water systems. Fruit Growing majors.)

2-hour laboratory periods a week. Credit, 3.

GRICULTURAL OPPORTUNITIES FOR WOMEN S-1. I.

A study of problems of vocational adjustments and of opportunities or women in agriculture and related fields.

class hour a week. Credit, 1.

ACTERIOLOGY S-1. (Bacteriology and Rural Hygiene) I.

The reproduction, structure, growth, changes produced by the action of acteria upon various substances and the methods by which disease producing bacteria of man and animals are disseminated will be studied. he proper use of disinfectants, vaccines and serums in the control and eatment of disease will be discussed. The purpose of the course is to resent the problems of applied bacteriology in health, agriculture and dustry. The sanitary production, handling and distribution of milk volving human and environmental contacts with a food often consumed aw is an important problem to be controlled by responsible citizens of ie community. Discussions on milk include the various sources of milk fections, methods of controlling sanitary production and marketing and ie detection and elimination of milk dangerous to the public health. Vater supplies are of especial importance to man. The construction of ells, cisterns, etc., will be briefly considered and the application of sanary measures to prevent and control their pollution will be discussed. he proper treatment and disposal of private and municipal sewage resents a problem of no small importance. Work has been planned in is course to present some of the problems pertaining to the sanitary roduction and distribution of foods.

This course is designed to acquaint the student with the nature and nportance of micro-organisms and thus better explain biological changes nature and susceptibility to disease. (Animal Husbandry, Poultry and airy Manufactures majors.)

class hours a week. Credit, 3.

ACTERIOLOGY S-2. (Bacteriology and Rural Hygiene) II.

This course is a continuation of Bacteriology S-1 for Dairy Manuactures majors.

class hours a week. Credit, 3.

ACTERIOLOGY S-4. (Dairy Bacteriology) II.

Bacteria and other micro-organisms are the responsible agents for hanges which occur in milk, and for the contagion which sometimes auses diseases. They are found in milk at times when leaving the udder, hey get in with the dust and dirt while milking and they adhere to the airy utensils which carry them over from one milking to the next. From he cow to the consumer there is the constant presence of these microrganisms to contend with, on the one hand, and to foster on the other.

Many of these changes occurring in milk are undesirable, such as ropy ilk, sour milk, bitter milk, tainted milk, etc. Many of these changes are ncouraged as the ripening of cream for butter, of milk for cheese, of ilks for milk drinks. The former are fought, the latter fostered.

Micro-organisms of typhoid fever, scarlet fever, diphtheria and other iseases find their way by means of milk to the consumer and produce pidemic forms of these diseases.

Various bacteriological tests for the estimation of the numbers and ypes of organisms in milk are studied. Special attention is given to the nterpretation of results indicated by the standard plate, Breed, methyene blue, and Burri methods of testing milk quality. Laboratory pro-

cedures for the determination of special groups of bacteria not normal found in milk, such as fecal contaminants and heat resistant organism are discussed. The proper use of these methods will quickly enable o to locate the source of trouble and check any further continuance.

It is evident, therefore, that to handle milk and milk products safe it is desirable to know something of the agents which are the source so much attention in the dairy. This indicates the nature of the su stance of this course. This course is required of all students who ele dairying as one of their special lines of work.

3 3-hour laboratory periods a week. Credit,

BEEKEEPING S-1. (Fall Management, Wintering and Honey Marketing)

The students are given an opportunity for individual handling of be in the early fall, and field studies are made of the bee colony and i organization. Studies and practice in fall feeding are followed by a sin ilar treatment of winter protection and the bees are then prepared f winter. During the latter part of the semester the surplus honey extracted and prepared for market, a laboratory study made of the pr duct and, finally, the commoner bee diseases are discussed and metho of control pointed out.

1 class hour and 1 2-hour laboratory period a week. Credit,

BEEKEEPING S-2. (Spring Management, Pollination, and Honey Produ tion) II.

The first part of the semester is occupied in assembling and studyin the equipment used in beekeeping, but as soon as the weather permit work is resumed on the bees in the apiary. Studies are made in sprin management; pollination in the apple orchards is particularly stresse and attention is then turned to the preparation of the colonies for hone production.

Throughout the entire course, wherever possible, the work is mad practical and individual, enough theory being given so that the studer will understand the reasons for his manipulations.

1 class hour and 1 2-hour laboratory period a week. Credit,

BOTANY S-2. (Diseases of Trees and Shrubs) II.

This course is planned for students majoring in Horticulture. Topic presented follow: (1) Concept of a fungus and bacterium. (2) Para sitism. (3) Type specimens of tree diseases, heartrot, saprot, barkro (4) Woodrots. (5) Bud, leaf, flower, and fruit blights. (6) Root an vascular parasites. (7) Nonparasitic diseases. With each type, closel allied forms are also presented together with the general methods fo control. The types are taught objectively and definite periods set asid for oral quizzing.

1 class hour and 1 2-hour laboratory period a week. Credit,

BUSINESS ENGLISH S-1 and S-2. I. II.

This course is designed to cover review work in the fundamentals o grammar and composition, and to give students training and practice i writing various types of business letters, reports, advertising copy, an news articles relating to their special fields.

3 class hours a week. Credit,

BUSINESS LAW S-1. I.

Required for freshmen. To consist of a particular study of the con tract drawing, reading and interpretation with specific problem work Commercial paper, torts, equity and personal rights presented by lecture during the course. Particular stress is placed on the reasoning process

3 class hours a week. Credit,

BUSINESS MANAGEMENT S-1. I.

This course is designed primarily for students majoring in Floricul ture. It involves a study of records and accounts used by florists; cost

d prices; uses of capital and credit; house and store management; vertising; buying and selling; economic use of labor and equipment; neral business trends as affecting the flower business; how the florist ould make adjustments to meet economic changes; analyses of going ncerns; and finally a bringing together of all the information studied d applying it to the successful organization of a business. The entire urse is to be made as applicable and practical as possible.
class hours and 1 2-hour laboratory period a week. Credit, 3.

USINESS MANAGEMENT S-3. I.

This course is designed primarily for students majoring in Dairy anufactures. The principles of business organization and management e considered in relation to the successful operation of a dairy plant. he course includes a study of the following: various records and counts used by dairies; costs and prices; uses of capital and credit; onomic trends as affecting the business; how to make adjustments in e business to meet economic changes; analyses of different types of ing concerns; and finally a bringing together of all the information udied and applying it to the successful organization of a business.
class hours and 1 2-hour laboratory period a week. Credit, 3.

NTOMOLOGY S-2. (Insects of Ornamental Trees, Shrubs, and Flowers) II.

A course designed to acquaint the student with the major pests of the ants mentioned. Course will consist of one lecture period to include th floriculture and horticulture students. There will be one 2-hour lab- atory period a week for each group. In this the life histories and ntrol measures of the important pests will be considered.
class hour and 1 2-hour laboratory period per week. Credit, 2.

ARM MANAGEMENT S-1 and S-2. (Farm Management and Accounts) I. II.

The work in this course involves a study of farm records and accounts; sts and prices of farm products; uses of capital and credit; types of rming, selection of crop and live stock enterprises; size, diversity and oduction as related to the successful farm business; farm layout and rangement; economic use of labor, power and equipment; detailed an- ysis of both successful and unsuccessful farms, how the farmer should ake adjustments to meet economic changes; and finally, a bringing gether of the information gained and applying it to the successful ganization of a farm business.

Actual farm records are used to illustrate the above points. The entire urse is made as applicable and practical as possible.
class hours and 1 2-hour laboratory period a week. Credit, 3.

Note.—Farm Management will be given both semesters. The first mester will be for students majoring in Animal Husbandry; the second mester for students majoring in Poultry Raising, Fruit Growing and egetable Gardening.

ARM MANAGEMENT S-3. (Efficiency in Farming Operations) I.

For Freshmen. This is an introductory course to the regular Farm anagement work which comes in the second year. It is in no sense a eoretical consideration but rather a study of the practical aspects of e efficiency of the many day-to-day jobs found on various types of rms. In brief, a careful analysis is made of the "one best way" of ing the jobs. The course involves a study of farm layout, building lay- t, economical use of machinery and equipment, and efficiency in hand erations. The primary objective is to point out ways of reducing farm bor costs. Motion pictures will be used to illustrate good methods rsus poor or inefficient methods.
class hour and 1 2-hour laboratory period a week. Credit, 2.

ORESTRY S-2. (Introduction to Forestry) II.

The forest, its nature and uses; its place in New England farm and tate economy. Forestry, what it is and what it can accomplish in New

England; the application of forestry, a discussion of the methods appl ing practical measures of forest improvement. What the owner can ma his forest do for him.
3 class hours a week. Credit,

FORESTRY S-3. (Forest Estimating and Mapping) I.

The principles of timber estimating; determination of the volume a value of the forest growing stock; volume growth of trees and fore stands; wood as an annual or periodic crop. Field work includes a pro lem in practical timber estimating and forest mapping.
1 class hour and 1 4-hour laboratory period a week. Credit,

FORESTRY S-4. (Forest Production) II.

The basic principles of applied silviculture; methods of cultivating a reproducing the forest; seeding and planting in forest practice wi especial reference to New England conditions; forest characteristics regionally important tree species; systematic demonstration and fie practice in marking stands for the intermediate cuttings and reprodu tion methods.
1 class hour and 1 4-hour laboratory period a week. Credit,

HORTICULTURAL MANUFACTURES S-1. I.

A general course in food preservation which aims to give the student broad and general knowledge of the subject. The work covers the theo ies, science and practices of preserving fruits, vegetables and meat together with the manufacture and preservation of fruit and vegetab products. Canning, dehydration, salting and manufacturing are the mo important topics considered.
1 class hour and 2 2-hour laboratory periods a week. Credit,

HORTICULTURAL MANUFACTURES S-2. II.

This is a continuation of Horticultural Manufactures S-1 and cove the study of manufacturing miscellaneous products. The work includ the manufactures of confections for both homemaker and small cor mercial producer, pickles and pickle products, maple products, citrus fru products and the canning of meats, poultry and spring fruits and veg tables.
1 class hour and 2 2-hour laboratory periods a week. Credit,

HORTICULTURAL MANUFACTURES S-4. II.

The class and laboratory exercises in this course are planned to me the needs of students majoring in Dairy Manufactures. General pri ciples of food preservation and their application to the subject of dair ing are discussed in class exercises. Crushed fruits, fruit juices, syrup flavored syrups and other products which are utilized in the dairy trad are manufactured and tested.
1 class hour and 2 2-hour laboratory periods a week. Credit,

PUBLIC SPEAKING S-1 and S-2. I. II.

The aim of the course is to give the student confidence in himself whi speaking before groups, and to have him acquire some knowledge of, an practice in, the more practical types of public speaking.
1 class hour a week. Credit,

RURAL LITERATURE S-2. II.

A study of selected English and American writers, with especi emphasis on rural subject matter and background.
2 class hours a week. Credit,

SOILS AND CROPS S-1. (Soil Management) I.

Every agricultural interest is vitally concerned with the soil, it adaptations and its management for plant production. This course treat of the selection of suitable soils for the special purposes of agricultur horticulture and floriculture.

Laboratory includes training in the use and interpretation of the aps of the U. S. Soil Survey and in tests of soil texture, organic matter id soil acidity. Practical field work will be given in judging the crop laptation and value of soils, and field demonstration of the use of llage tools on the college farm.

As a field project the student will be required to make a study of some rm, nursery or florist's plant, from the standpoint of soil conditions id methods of soil management in relation to the enterprise as a whole. class hours and 1 3-hour laboratory period a week. Credit, 3.

OILS AND CROPS S-2. (Fertilizers) II.

This course deals with the origin, manufacture, purchase and use of mmercial fertilizer materials. A study will be made of the interpretaon of fertilizer formula, analysis and guarantee. Special attention will e given to the newer concentrated fertilizer materials and to those proiced from atmospheric nitrogen. The laboratory work will give practice the identification of fertilizer materials, in the calculation of fertilizer rmulas, and in the preparation of fertilizer mixtures.

class hours and 1 2-hour laboratory period a week. Credit, 3.

OILS AND CROPS S-4. (Field Crops) II.

The lecture hours of this course will be devoted to presentation and disssion of the most successful methods of fertilizing, cultivating, harsting, and storing the field crops grown in New England. Special attenon will be given to the choice of the best adapted varieties for the proiction of hay, pasture, corn, potatoes, and root crops.

The laboratory work will include the study of corn and potato varieties, lentification of grass and weed species, and studies of purity and germnation. Field observation of growing crops will be included as the eason permits.

class hours and 1 2-hour laboratory period a week. Credit, 3.

OILS AND CROPS S-5. (Construction and Maintenance of Fine Turf Areas) I.

At the completion of this course the student should have a knowledge nd appreciation of the requirements for the growing of lawns and ports turf.

He will have considered the construction of turf areas; seed identificaion, selection and sowing; the identification of turf grasses and their oil and fertilizer preferences, correct cultural practices, turf diseases nd pests and their control.

class hour and 2 2-hour laboratory periods a week. Credit, 3.

OILS AND CROPS S-7 and S-8 (General Science) I. II.

This is a course in applied sciences, chiefly in the fields of chemistry nd physics, as they are tools serving the needs of the dairy industry. n general, the course is designed to give an introduction to scientific hought and phenomena by means of lectures, textbook study and classoom demonstrations. The emphasis is entirely built around the practical roblems in the student's field of work. Specifically, this is a survey ourse given to Dairy Manufactures and Hotel Stewarding majors.

class hours and 1 2-hour laboratory period a week. Credit, 3.

ETERINARY SCIENCE S-1. (Animal Sanitary Science) I.

Sections for Animal Husbandry, Dairy Manufactures, and Poultry Husbandry Major students. Conservation of the health of animals is the eystone of successful animal husbandry. This course acquaints students vith the essentials upon which the health of animals depends. In order hat students may later guard the animals in their charge, attention is given to conditions favoring communicable and non-communicable diseases, and to prophylactic measures.

3 class hours a week. Credit, 3.

VETERINARY SCIENCE S-2. (Applied Animal Sanitary Science) II.

A continuation of S-1. The Animal Husbandry section will study e more common diseases of cattle, horses, sheep, and swine, and the Poul y Husbandry section will study poultry diseases. Causes; developme ; emergency; control; eradication; and prophylactic measures will e emphasized.

3 class hours a week. Credit, .

FARM PRACTICE.

Individual tests are given all students as indicated in the vari s course programs in both milking and harnessing and teaming. T students are graded either very good, good, satisfactory or unsat - factory. Those who have not had sufficient experience to satisfactor pass these tests are required to take additional practice by appointme with the Farm Superintendent. Not more than two students are sch - uled each day for practice in milking under the supervision of the her - man, and those not satisfactorily passing the teaming test are schedul for individual work with the teamsters on the College Farm. Those w pass the test as satisfactory, but who wish additional practice may do by appointment. The opportunity is available for any who wish to secu additional skill in farm operations such as plowing, harrowing, etc.

This assignment in developing necessary farm skills is an importa part of the vocational training program of each course during the f semester of the first year and a complete report on each student's sk and ability is submitted to the Short Course Office and to the Director Placement Service, who has charge of locating all placement jobs. St dents failing to pass these tests satisfactorily inevitably limit themselv from securing the better placement positions.

PHYSICAL EDUCATION

Women

This program aims at an all-round development of the student. gives the student activity adapted to her needs; assists in overcomin remediable physical defects and bad health habits; it encourages goc health standards, helps her build up skill in sports and games and swin ming and leaves her with possibilities for spending leisure time wisely.

REQUIRED COURSES

PHYSICAL EDUCATION S-1. I.

Outdoor season—field hockey, soccer, archery, tennis, golf, special gyn nastics, swimming.

Indoor season—badminton, basketball, folk dancing, tap dancin games, special gymnastics, swimming, volley ball.

3 class hours a week. Credit,

PHYSICAL EDUCATION S-2. II.

Indoor season—badminton, basketball, folk dancing, tap dancing special gymnastics, swimming, volley ball.

Outdoor season—archery, baseball, special gymnastics, tennis, swim ming, golf.

3 class hours a week. Credit, 2

HYGIENE S-1. I. (For Freshmen)

Lectures on personal hygiene, including the physiological basis fo sound health habits, the importance of the systematic planning of student's daily program in order to provide the proper amounts of tim for study, with suitable periods of sleep, relaxation, recreation, an sports; posture, appropriate types of exercise, proper nutrition, socia

adjustment, the necessity for frequent medical, optical, and dental advice; sanitation and group health requirements.
1 class hour a week. Credit, 1.

Elective Courses

Physical Education S-3 and S-4. I. II. (For Seniors)

The senior program is arranged to give the student an opportunity to express her desire for wholesome physical recreation, to further develop desirable character traits and social qualities and qualities of leadership.
2 class hours a week. Credit, 2.

Men

Required Courses

Physical Education S-1. I. (Recreation.—For freshmen. Outdoor games.)

The following outdoor games are taken up: Soft ball, touch football, golf and swimming. Men may elect football or cross-country. The course aims to give every man the opportunity to develop sufficient control over his body to enable him to get pleasure from physical activities and to establish correct health habits.
2 laboratory hours a week for first half semester. Credit, 1.

Physical Education S-5. I. (Recreation.—For seniors. Outdoor games.)

Includes the games of badminton, volley ball, archery and swimming, with the object of giving the men a fund of exercise material for use in after school days. Men may elect football or cross-country.
2 laboratory hours a week for first half semester. Credit, 1.

Student Health S-3. I. (Hygiene.—For freshmen.)

Lectures on personal hygiene including the physiological basis for sound health habits, the importance of the systematic planning of a student's daily program in order to provide the proper amounts of time for study with suitable periods of sleep, relaxation, recreation and sports; posture, appropriate types of exercises, proper nutrition, social adjustment, the necessity for frequent medical, optical and dental advice, sanitation and group health requirements. The class will be divided into two sections. Section I, October and November; Section II, December and January.
1 class hour a week. Credit, 1.

Elective Courses

Physical Education S-4. II. (Recreation.—For freshmen and seniors.) (Basketball, Hockey, and Indoor Track.) January-March.

Students electing this course must be regular members of the basketball, hockey, or indoor track squads and report regularly for practice with those squads. Credit, 1.

Physical Education S-6. II. (Recreation.—For seniors.)

The senior class is divided into three or four major groups according to the number of students electing the spring physical education program. An intramural baseball league schedule is played and an indoor and outdoor track meet run off. The group winning the highest average in all three events will have its name engraved on the Stockbridge School spring athletic trophy. Credit, 1.

APPLICATION FOR ENROLMENT IN THE STOCKBRIDGE SCHOOL OF AGRICULTURE

Name ..... Date .....

City or

Town ..... *Street* ..... State .....

Present Occupation ..... Age .....

School or College Attended:

Name of School ..... Number of Years in High School .....

Place .....

Indicate by a check mark the course in which you desire to register. Do not check more than

1. Animal Husbandry
2. Dairy Manufactures
3. Hotel Stewarding
4. Poultry Husbandry
5. Floriculture
6. Fruit Growing
7. Ornamental Horticulture
8. Vegetable Gardening
9. Wildlife Management

References.—I am personally acquainted with the above applicant, and know ..... to be of good moral character, industrious, studious, and physically capable.

1. Name ..... Position .....

   Address .....

2. Name ..... Position .....

   Address .....

(Two references are required, and should not be members of your own family. Your m- ister and your teacher, or a former employer, are desirable. These persons should sign e application themselves.)

Mail this blank to ROLAND H. VERBECK, *Director of Short Courses*
MASSACHUSETTS STATE COLLEGE, AMHERST, MASS.

Important.—Be sure to file citizenship certificate if State tuition rate is claimed. Fill out s- plementary application blank on following page if majoring in Animal Husbandry or D: Manufactures.

SHORT COURSES AT MASSACHUSETTS STATE COLLEGE

Short courses are based on the idea that the motive which inspi study is the most significant factor in study itself, and that this moti rises when the student himself realizes he faces a problem that calls f a solution. Therefore there is no age limit. Enrolled in short courses a found the young and the old, the experienced and the inexperienced, t theoretical and the practical. In this grouping there is a value, sin students learn from each other as well as from the instructors. Prac cally all Short Course students intend to make a direct application of t knowledge given. Hence the aim of Short Course work is to offer t largest amount of information and training in agricultural and hor cultural lines in the shortest possible time. During the past twen years Short Courses have served hundreds of students in this Commo wealth, and the demand for these courses in recent years has steadi continued.

DIRECTORY OF INFORMATION

A. The College

Those desiring college catalogs and other pamphlets giving full info mation relative to entrance requirements, courses of study, expense opportunities for student labor, and so forth, and those with questio regarding admission to the college, either to the freshman class or advanced standing should address William L. Machmer, Dean of the C lege, Amherst, Mass.

B. The Graduate School

Questions relating to courses offered leading to the degrees of Mast of Science and Doctor of Philosophy, admission and work require should be addressed to Fred J. Sievers, Director of the Graduate Scho Amherst, Mass.

Short Courses

For information concerning the Short Course Units, the Stockbridge School of Agriculture, the College Summer School, write or apply to Roland H. Verbeck, Director of Short Courses, Amherst, Mass.

INFORMATION FOR FILLING OUT SUPPLEMENTARY APPLICATION

If a high school graduate, send transcript of your high school records, also statement of your principal certifying if you were in upper 60% of your class. If in the lowest 40% you are not eligible until after September 1, and name will be placed on reserve list for possible acceptance then, if quota is not filled previously.

Applicants not attending high school or not completing high school course will be placed on reserve list until September 1, when faculty committee will select to fill any vacancies.

Applicants from out-of-state (not Massachusetts citizens) who are in the upper 60% of their class, will be accepted up to one-fifth of the quota, namely, seven in Animal Husbandry and five in Dairy Manufactures. Applicants over this number and those ranking in the lower 40% of their class, will be placed on the reserve list until September 1.

SUPPLEMENTARY APPLICATION FOR ENROLMENT IN THE STOCKBRIDGE SCHOOL OF AGRICULTURE

(To be filled in by applicants for Animal Husbandry and Dairy Manufactures major courses only, because of limited quotas, 35 and 25 respectively, effective October 1939)

Please Supply Information Requested in Full Detail

1. Name ..... Date.....
2. Address ..... Major.....
3. Age ..... 4. Height..... 5. Weight.....
6. Any physical defects likely to prevent placement or employment.....
   .....
7. What farm or dairy plant experience have you had?.....
8. Where? ..... How Long?.....
9. Why have you selected this major course?.....
10. What do you plan to do after completing this work?.....
    .....
    .....

Mail this blank, with information requested, to ROLAND H. VERBECK, *Director of Short Courses*
MASSACHUSETTS STATE COLLEGE, AMHERST, MASS.

Tentative Dates for Short Courses

The following courses or group programs will be offered in 1939-1940, lt are subject to changes as may be necessary.

Nine Weeks' Course in Poultry Raising. November 6, 1939-January 1, 1940.

Ten Weeks' Course in Greenkeeping. January 2-March 11

Ten Day Course in Dairy Bacteriology. (January 2-13.)

Five Day Course in Milk and Cream Testing; Analyzing and Inspecting Milk Products. (January 15-20.)

Five Day Course in Milk Plant Operation and Manufacture of Surplus Milk Products. (January 22-27.)

Five Day Course in Ice Cream Making for beginners. (January 29-February 3.)

Five Day Course in Ice Cream Making for experienced students. (February 5-10.)

Five Day Course for Tree Wardens and Town Foresters. (March 26-30.)

For catalog of any of the schools, write
Director of Short Courses, M.S.C., Amherst, Mass.

CERTIFICATE OF CITIZENSHIP

The Massachusetts State College charges a tuition fee of $110 a semester to students who are not residents of Massachusetts. In order to satisfy the college authorities that an applicant is entitled to state tuition of $50 a semester, they require a statement signed by the clerk of the city or town in which the applicant resides, certifying to the fact that the parent or guardian of the applicant is a legal resident of said city or town. Where the guardian is certifying to this statement, it will be necessary for him to furnish copies of his appointment by the court. Such a statement may be made on the form below. If this is not presented when the student registers, the Treasurer has no option but to collect tuition on the above basis. When requesting the City Clerk to sign this certificate, an applicant for admission to the college should give the name and address of the parent or legal guardian.

This is to certify that I am the father.....mother.....legal guardian.....

.....

Student's Name

Signed .....

This is to certify that on the date specified below (Insert name of parent or guardian)

.....is a legal resident of.....

Above Signee

....., Massachusetts.

Town or City

Signed.....

Town or City Clerk

Date .....

Seal

Mail this blank to ROLAND H. VERBECK, *Director of Short Courses*

MASSACHUSETTS STATE COLLEGE, AMHERST, MASS.

This certificate must be filed with application blank if lower tuition rate for citizens of Massachusetts is to be secured.

STOCKBRIDGE SCHOOL OF AGRICULTURE

Graduates 1939

Robert Oakly Abbott, Jr	Bristol, Connecticut
Donald Shaw Adams	Dalton, Massachusetts
Roland Walter Aldrich	North Springfield, Vermont
James Philip Alexakos	Dracut, Massachusetts
Cornelius Henry Ash, Jr	Holyoke, Massachusetts
Theodore Frank Bartlett	Salisbury, Massachusetts
Basil Benjamin Bearse	Hyannis, Massachusetts
Charles Everett Bein, Jr	South Hadley, Massachusetts
Warren Samuel Bemis	Spencer, Massachusetts
Mary Phyllis Benben	North Hadley, Massachusetts
Arthur Wilson Berry	Fall River, Massachusetts
Robert Elmer Berry	Springfield, Massachusetts
Norman Everett Bickford	West Chelmsford, Massachusetts
Oscar Palmer Bodwell	Sharon, Massachusetts
John Howard Brewster	Springfield, Massachusetts
Leon Alfred Brock	Palmer, Massachusetts
Sumner Tuell Carlson	Milton, Massachusetts
John Joseph Clancy	Dorchester, Massachusetts
Malcolm Sears Clark	Ashfield, Massachusetts
William Patten Conant	Brookline, Massachusetts
Albert Edward Conklin, II	Copake, New York
George Richmond Denison	Mystic, Connecticut
Paul Joseph DeRusha	Newton Highlands, Massachusetts
James Henry Doherty	Lincoln, Massachusetts
John Thomas Donovan	Malden, Massachusetts
John Eadie, Jr	Dracut, Massachusetts
Helen Esselen	Millis, Massachusetts
Wallace James Everett	Hamden, Connecticut
George Stanley Ferris	Sharon, Massachusetts
W. Weston Fenton	Brockton, Massachusetts
William Arthur Fitzpatrick	Rochdale, Massachusetts
John Farwell Fuller, Jr	Lancaster, Massachusetts
Perry Marshall Gebhardt	West Roxbury, Massachusetts
Eugen Pierre Karl Gieringer	Cambridge, Massachusetts
Earl Curtis Gillespie, Jr	Hollis, New York
John Perrins Goodale	Wethersfield, Connecticut
Richard David Gordon	Green's Farm, Connecticut
Frederick Francis Guyott	Amherst, Massachusetts
Edward Neal Harrington	West Newton, Massachusetts
Douglas Kenneth Henderson	Whitinsville, Massachusetts
John Warner Hibbard	Whately, Massachusetts
Wilfred Edward Hines	Cohasset, Massachusetts
Carl Leonard Hook, Jr	Worcester, Massachusetts
Raymond Proctor Houle	Newbury, Massachusetts
Norman Hubbard	Bloomfield, Connecticut
Robert Floyd Jones	Amherst, Massachusetts
Michael William Kandianis	Fitchburg, Massachusetts
John Howe Kelso	Chester, Massachusetts
Morris Leo Kohn	Roxbury, Massachusetts
Alfred Melvin Kumins	Dorchester, Massachusetts
William Napoleon Lavoie	Lowell, Massachusetts
Norman Fairbanks Lawton	Foxboro, Massachusetts
O. Theodore Lindgren	New Bedford, Massachusetts
Weikko Albert Mackie	Hubbardston, Massachusetts
Charles Forbes Mandell	Rockland, Massachusetts
Richard Stewart Mayberry	Orange, Massachusetts
Albert Mitchell	Taunton, Massachusetts
Stephen Kingsley Morse	East Woodstock, Connecticut
Myron Montgomery Munson	Amherst, Massachusetts
Donald Collister MacDonell	Washington Depot, Connecticut
James Joseph McDonough	Springfield, Massachusetts
Thomas Bernard MacQuinn	South Weymouth, Massachusetts
Charles Erold Nelson, Jr	Fall River, Massachusetts
William Pierce Ogden	Wolcott, Connecticut
Charles Bright Olds	East Northfield, Massachusetts
Casper John Perednia	Norwood, Massachusetts
William Phillips, Jr	Beverly, Massachusetts
Charles Robert Pickard	Salisbury, Massachusetts
John Aloysius Plotczyk	South Vernon, Massachusetts
Raymond Edward Potter	Ludlow, Massachusetts
Robert William Potter	North Billerica, Massachusetts
Charles Joseph Russo	Lawrence, Massachusetts
Russell Stoddard Shaw	Simsbury, Connecticut
Daniel Joseph Shine	Cambridge, Massachusetts
Richard Allison Smith	Greenwood, Massachusetts
Richard Marshall Sparks	Wakefield, Massachusetts
Edgar Winfred Spear	Everett, Massachusetts
Arthur Phillips Stedman	Amherst, Massachusetts
Clarence Edward Stillman	North Granby, Connecticut
Vincent Thomas Sullivan	Chicopee, Massachusetts
Raymond Ernest Taylor	Worcester, Massachusetts
James Edward Teevan	Boston, Massachusetts
Alfred Nahumn Thompson, Jr	Framingham, Massachusetts

G Burgess Thornton	Hartford, Connecticut
D d Fowle Treadway	Williamstown, Massachusetts
A lander Frank Tripp	Westport, Massachusetts
R h Foster Verrill	Concord, Massachusetts
A rew Cleveland Warner	Sunderland, Massachusetts
B ing Lewis Wentworth, Jr	Melrose, Massachusetts
E t Marshall Wheeler	Melrose Highlands, Massachusetts
W iam Francis Whelan	Boston, Massachusetts
F ces Chase Whitman	Cambridge, Massachusetts
G ge Norman Wilkinson	Williamsport, Pennsylvania
D ld Kingsley Williams	Westhampton, Massachusetts
E ard van Alstyne Wilson	Clermont, New York
H ard William Winter	Westminster, Massachusetts
L rence Curtis Woodfall, Jr	Belmont, Massachusetts
G lon Thomas Woods	Newington, Connecticut
F l Loring Wright, Jr	Brockton, Massachusetts
W ren Granville Wright	Abington, Massachusetts

As of the Class of 1938

P l Frederick Callahan	Revere, Massachusetts

Class of 1940

A ms, Harold William	Northampton	Northampton
A iance, Harry Lawrence	Pelham	Pelham
A cevitz, Paul Mitchell	Attleboro	33 Phillips Street
A nitage, Warren Emery	Belchertown	Belchertown
A ins, Leonard Lewis	Arlington	86 North Pleasant Street
B er, Henry Maurice	Willimansett	Willimansett
B ley, Donald Wright	Melrose Highlands	Mt. Pleasant Inn
B , Hugh Ernest	Auburn	36 Hallock Street
B entine, William Robert	Brockton	44 Kellogg Avenue
B tlett, Ray Langlouis, Jr.	Westfield	382 North Pleasant Street
B wood, Augustus Vincent, Jr.	Stoneham	86 North Pleasant Street
B sett, Thomas Henry	Weston	77 North Prospect Street
B ey, Thomas Edward, Jr.	Weston	Mt. Pleasant Inn
B son, Richard John	Jamaica, L. I., New York	100 North Prospect Street
B t, Trowbridge Clark	Framingham	13 Nutting Avenue
B keley, Elinor Grace	Newton Centre	33 Cosby Avenue
b gham, Donald Eugene	Fitchburg	375 North Pleasant Street
C kwood, James Joseph	Saylesville, R. I.	34 Kellogg Avenue
C emer, Constance Marie	Holyoke	Holyoke
C ne, Ronald Murray	West Enfield, Maine	M. S. C., Farm House
C sworth, Clyde Otis, Jr.	Halifax	215 Sunset Avenue
C sworth, Henry Martin	Halifax	215 Sunset Avenue
C wman, Norman Leslie	Westboro	27 East Pleasant Street
C iesmaster, Harold Arnold	East Northfield	367 North Pleasant Street
C own, Percy Elliott	South Hanson	388 North Pleasant Street
C own, Robert Lovell	Braintree	163 Northampton Road
C own, Samuel Bassett	Newton Centre	31 Mt. Pleasant
C owning, George Uberto, Jr.	Lincoln	15 McClellan Street
C rke, John Joseph	Medford	12 Tillson Court
C rbary, Clarence Thomas, Jr.	Maynard	112 Cottage Street
C mbalisty, Albert Leon	Northfield	388 North Pleasant Street
C ace, Williston Cady	Swansea	68 McClellan Street
C iartier, Bernard Joseph	Willimansett	375 North Pleasant Street
C essia, Robert Charles	Scituate	41 Cottage Street
C ungio, Charles Francis	Hadley	Hadley
C arke, Leonard McLaine	Milton, New York	44 Mt. Pleasant
C ement, Roland Charles	Fall River	33 Phillips Street
C eveland, Melvin Francis	Tisbury	449 North Pleasant Street
C iggott, William George, Jr.	Medford	12 Tillson Court
C ough, Lauren Abbott	Greenwood	12 Colony Court
C ates, Charles Herbert	Lynn	461 North Pleasant Street
C llingwood, Frank McFarlan, Jr.	Greenfield	14 Allen Street
C nnor, John Joseph	Worcester	49 Kellogg Avenue
C rbett, Fred Marson	New York City, N. Y.	49 Kellogg Avenue
C rfield, Richard Leo	Worcester	375 North Pleasant Street
C rane, Joseph James	Salem	41 Cottage Street
C rudden, John Francis	Roslindale	461 North Pleasant Street
C unningham, William Edward	Malden	103 North Pleasant Street
C aley, George Ellsworth	Salem	65 North Prospect Street
D avis, Harold Francis, Jr.	Reading	30 Cottage Street
D avis, Warren Frederick	Waban	10 Tyler Place
D eVine, Karl Ernest	Ferrisburg, Vermont	1170 North Pleasant Street
D eWitt, William Frederick	Granby	Granby
D ickie, Rebecca Sheldon	Pittsfield	82 North Prospect Street
D iGregorio, Albert Arthur	Waltham	24 McClellan Street
D oe, Robert Harrison	Watertown	259 North Lincoln Avenue
D orchester, Chester Hawthorne	Marlboro	1136 North Pleasant Street
D ow, Eugene Locke	Canaan, New Hampshire	93 Dana Street
D owning, Raymond Joseph	Holyoke	Holyoke

Eastman, Russell George	Lowell	24 McClellan Street
Eger, Dorothy Clara	Holyoke	Holyoke
Eklund, Norman Stuart	Dracut	24 McClellan Street
Fairbanks, Robert Parker	N. Springfield, Vermont	12 Colony Court
Farineau, Arthur Joseph	Malden	103 North Pleasant St
Foster, Arthur Wentworth	Dorchester	34 Kellogg Avenue
Foster, Philip Thayer	South Dennis	11 Paige Street
Frappier, Arthur Robert	Springfield	Springfield
Frey, William Stoneback	Grafton	260 North Lincoln Av
Frissell, Charles Edward	Dudley Hill	15 Allen Street
Gagnon, Jane Caroline	Northampton	East Pleasant Street
Gamache, Robert Clarence	Leominster	13 Nutting Avenue
Gaudette, Ethel Mae	Hanson	82 North Prospect St
Glazier, Orman Hemenway	Leverett	Leverett
Goodwin, Bruce Howard	Leominster	449 North Pleasant S
Graham, John Wilbur	Kensington, Connecticut	33 Phillips Street
Graham, Kenneth Blanchard	Lowell	150 Montague Road
Hamelin, Edward Joseph	Whitman	14 Beston Street
Hanscom, Lloyd Allan	Boston	13 Hadley Court
Hanson, Joseph Hilbert	Woburn	41 Phillips Street
Harney, Edward Francis	Cambridge	44 Kellogg Avenue
Harris, Burton Kenneth, Jr.	Lincoln, Rhode Island	34 Kellogg Avenue
Harris, Herbert II	Lincoln, Rhode Island	34 Kellogg Avenue
Hasenjager, Herman Edward	Monson	Monson
Hatch, Gordon Wilbur	Shirley	84 Sunset Avenue
Hibbard, George Chester	North Hadley	North Hadley
Himmelreich, Ralph Charles	Granby	Granby
Holland, Edward Wade	New York City, N. Y.	14 Allen Street
Horton, Earle Remington	North Attleboro	62 North Prospect Str
Hosmer, Samuel Monroe	Concord	260 North Lincoln Av
Howard, Frank Leo, Jr.	Natick	388 North Pleasant S
Howard, Samuel Lawrence	Kinderhook, New York	155 North Lincoln Av
Hugelman, Allan Norman	Andover, Connecticut	750 North Pleasant S
Hurlburt, Watson Mills	Holyoke	Holyoke
Irish, Robert Alva	Bridgeport, Illinois	1164 North Pleasant St
Jackowski, Alphonse Joseph	Hatfield	Hatfield
Jackson, Donald Paul	Shrewsbury	65 North Prospect Str
Jacobi, Harold Jr.	Woodmere, L. I., N. Y.	Mt. Pleasant Inn
Jarkko, Ellen Alice	Fitchburg	82 North Prospect St
Johnson, Edward Francis	West Barnstable	375 North Pleasant St
Kalacznik, Paul Anthony	Taunton	15 Allen Street
Keyes, Pearl Pease, Jr.	Amherst	South Valley Road
Konieczny, Edward George	Amherst	R. R. 3, Box 126
Kosakowski, Stephen Raymond	Amherst	196 Triangle Street
Kulish, William John	Gardner	155 Lincoln Avenue
Ladd, Charles Versal	Whitman	215 Sunset Avenue
Lambert, William Neal, Jr.	Amherst	82 North Prospect Str
Lamsa, Toivo William Michael	Fitchburg	55 North Pleasant Str
LaRosa, Anthony Andrew	South Hadley	South Hadley
Lawton, Norman Fairbanks	Foxboro	338 Lincoln Avenue
Leach, Bradford Stiles	Melrose	12 Hallock Street
Leonard, Duane Reuben	Templeton	33 Phillips Street
Lloyd, John Bross, Jr.	Kinderhook, New York	19 Allen Street
Lotto, Samuel Harris	Boston	31 Hallock Street
Lukens, John Philip	Belmont	42 Cottage Street
Macklin, Robert Joseph	Cambridge	38 Cosby Avenue
Malinoski, Adolph Anthony	Amherst	268 Sunset Avenue
Margullan, John Edward	Amherst	107 East Pleasant Str
Marshall, Walter Frederick	Woburn	30 North Hadley Road
Martin, George Edward	Cheshire, Connecticut	55 North Pleasant Str
Maynard, Everett Lewis	Jefferson	382 North Pleasant St
Merriam, Bion Rich	Needham	Drake's Hotel
Messier, Jack Homer	New Bedford	40 Churchill Street
Miley, Thomas Jefferson, Jr.	Forest Hills, New York	49 Kellogg Avenue
Miller, Gordon Paul	Middlefield	19 Phillips Street
Molinari, David Joseph	Wallingford, Connecticut	12 Hallock Street
Morris, John William	Dorchester	303 North Pleasant Str
Morse, Wayne Hall	Fiskdale	90 Cottage Street
Morvant, Michel Adelard, Jr.	Greenfield	14 Allen Street
Mulrenin, George Joseph	Mattapan	12 Colony Court
McCredy, Charles Alfred	Malden	103 North Pleasant Str
McDonald, James Leo	South Boston	49 Kellogg Avenue
McLean, Matthew Francis	Holyoke	Mt. Pleasant Inn
McNamara, John Edward	Pittsfield	41 Cottage Street
MacNeil, Mark Kelly	Wellesley	12 Tillson Court
McTernan, Donald	Waterbury, Connecticut	41 Cottage Street
Nelson, Charles Farley	Monson	Monson
Neville, John Daniel	Woburn	1136 North Pleasant Str
Newton, Gordon Barrett	Athol	269 North Pleasant Str
Nickerson, Charles Richard	Orleans	41 Cottage Street
O'Gorman, Joseph Benedict	Jamaica Plain	38 Cosby Avenue
O'Hearn, John Henry	Quincy	13 Maple Street
Oppenheimer, Carl Frederick	Natick	13 Maple Street
Ormo, Arthur Alexander	Sharon	42 Cottage Street
Osciak, William Frank	Hatfield	Hatfield
Pantanella, Anthony Albert	Waltham	24 McClellan Street
Patten, James Albert	Salisbury	East Pleasant Street

Pson, Willard Matthew	North Amherst	110 Meadow Street
Pe, Walter Allen, Jr.	Ludlow	30 McClellan Street
Pe, William Cushing	New London, Connecticut	13 Maple Street
Pettiere, George John	Worcester	150 Montague Road
Pam, David Alfred	Clinton	1164 North Pleasant Street
Prson, Donald Norton	Plymouth	15 McClellan Street
Pock, Alan Russell	Franklin	31 Hallock Street
Pe, Cole Britton	Scranton, Pennsylvania	155 Lincoln Avenue
Re Bernard Howard	Oxford	13 Hadley Court
Rnes, Everett Jones	Chestnut Hill	10 Allen Street
Re, Forrest Olds	Pelham	R. F. D., Box 135
Rey, Eugene Edward, Jr.	Worcester	38 Cosby Avenue
Riards, Richard Coughlin	Greenwich, Connecticut	Mt. Pleasant Inn
Riway, Thomas William	West Springfield	24 McClellan Street
Ril, Louis Herbert	Worcester	375 North Pleasant Street
Rers, Frank Vernon	North Weymouth	65 Farview Way
Rell, Paul Vernon	Belchertown	Belchertown
Rh, Thomas Joseph	Chicopee	100 North Prospect Street
Samandra, Eugene	Meriden, Connecticut	20 McClure Street
Srent, Frederic Day	Brownsville, Vermont	62 Orchard Street
Srent, Raymond Francis	Clinton	12 Tillson Court
Sct, Lewis Harvey	North Hadley	North Hadley
Sterick, Frank Treat	Melrose	31 Mt. Pleasant
Sial, Edward William	Dorchester	449 North Pleasant Street
Srh, Leonard Lucien	Springfield	84 Sunset Avenue
Srh, Wesley Riddell	Greenfield	15 McClellan Street
Sith, Thomas Richard	Thompsonville, Conn.	24 McClellan Street
Sur, William Orr	Agawam	388 North Pleasant Street
Sague, Carl William	Westboro	27 East Pleasant Street
Sley, Arthur Edward	East Pembroke	10 Tyler Place
Sts, Henry Raymond	Westfield	73 Fearing Street
Sne, Alice Marjorie	Roslindale	82 North Prospect Street
Sivan, Timothy Cornelius	Brockton	38 Cosby Avenue
Sivan, William Richard	Brookline	289 Triangle Street
Sir, Charles Joseph	Hadley	Hadley
Ts, Daniel Hiscock	Mendon	367 North Pleasant Street
Te, Richard Francis	Newport, Rhode Island	Mt. Pleasant Inn
Tala, John Rafael	Leicester	150 Montague Road
Tlor, Roland Francis	Hudson	375 North Pleasant Street
Than, James Patrick	Springfield	38 Cosby Avenue
Tall, Milton Townsend	Weston	77 North Prospect Street
Trlow, Gordon William	Greenfield	800 North Pleasant Street
Tney, Lawrence Leonard	Cambridge	8 Beston Street
Tas, Harold Adonis	Roslindale	41 Cottage Street
Te, Everett Alston	Salisbury	East Pleasant Street
Tnbull, James Wesley	Waltham	65 North Prospect Street
Tnquist, Barbara Marie	Malden	82 North Prospect Street
Vson, Paul Carter	Winchendon	318 Lincoln Avenue
Vskiewicz, Stanley Edwin	Amherst	16 Eames Avenue
Vidden, Richard Walter	Malden	103 North Pleasant Street
Vson, Richard Edward	Melrose	84 Sunset Avenue
Vslow, Charles Henry	Newton Highlands	174 Sunset Avenue
Vrcester, Russell Dutton	Hollis, New Hampshire	367 North Pleasant Street

Special Student

Ismiski, Peter Charles	Amherst	367 Northampton Road

Bulletin

MASSACHUSETTS STATE COLLEGE

WINTER COURSES

1939-1940

Bulletin
MASSACHUSETTS STATE COLLEGE

Winter Courses
1939-1940

The Winter Short Courses at Massachusetts State College are arranged primarily for ıe convenience of men and women engaged in the agricultural industry who wish to ɜe the opportunity afforded by the winter season for study and practice under pro-ssional supervision. The courses are arranged in units of varying duration from the ve-day courses in dairying to the eleven-weeks' course in greenkeeping. All courses re described on the following pages.

The College reserves, for itself and its departments, the right to withdraw or change ıe announcements made in its catalogue or in any of its official publications.

Amherst, Massachusetts

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Assistant Professor of Botany

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Instructor in Entomology and Beekeeping

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Assistant Professor of Agronomy

JOHN H. VONDELL . . . . . Poultry
Instructor in Poultry Husbandry and Foreman of Poultry Plant

MASSACHUSETTS STATE COLLEGE
WINTER SHORT COURSES

The Winter School Short Courses have been maintained by the College for over thirty years. They meet a definite need in providing instruction for groups of men and women who can leave their regular duties during the winter months. The school closes in time for students to begin practical work in the spring.

The following courses or group programs are offered:

1. Poultry Raising—Unit 1 (Nov. 6-24) Unit 2 (Dec. 4-15: Jan. 2-5) Unit 3 (Jan. 8-26).
2. Greenkeeping (An eleven weeks' course—(Jan. 2—March 15).
3. Advanced School for Greenkeepers. (Course A—January 2 to February 2; Course B—February 5 to March 11.)

Each of these courses requires a definite number of students as a minimum if the course is to be given. Also there is a maximum limit to the size of classes, and in the greenkeeping course early application is always advisable. See explanation of limited enrolment under each course on following pages.

In addition to these longer courses there are other courses offered for shorter periods of time and less expense, as follows:

4. Dairy Bacteriology Course—Tuesday, January 2, 1:00 P. M. to Saturday, January 13, 12 M.
5. Milk and Cream Testing; Analyzing and Inspecting Milk Products— Monday, January 15, 1:00 P.M. to Saturday, January 20, 12M.
6. Milk Plant Operation and Manufacture of Surplus Milk Products—Monday, January 22, 1:00 P.M. to Saturday, January 27, 12 M.
7. Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes and Freezing—Monday, January 29, 1:00 P.M. to Saturday, February 3, 12 M.
8. Ice Cream Making for Experienced Men—Monday, February 5, 1:00 P.M. to Saturday, February 10, 12 M.

The Dairy courses are so arranged that a student may take any one or all of them if he desires.

9. Five-Day Short Course for Tree Wardens and Town Foresters—Monday, March 25, 1:00 P.M. to Saturday, March 30, 12 M.

Winter School certificates will be awarded to students who complete the full work in the courses taken, with satisfactory grades.

Entrance Requirements

No entrance requirements have been fixed other than that the student shall be at least eighteen years of age and shall have completed the elementary or common schools.

Tuition, Fees and Expenses

There is a tuition fee of $10.00 for the full Ten Weeks' Winter School Program and each student is required to pay to the Treasurer a $5.00 registration fee. There are no laboratory fees in connection with any of the courses. The registration fee and tuition fee must be paid to the Treasurer of the college at the time of registration. There is also a health fee of $1.50 for the full term, not for the five-day or ten-day courses.

Board may be obtained at the college dining hall cafeteria service for $6.00 weekly, meal ticket plan or at public restaurants near the college grounds. Rent for furnished rooms in private houses varies in price from $2.50 to $4.00 a week for each occupant.

The Short Course Office will be glad to assist students in locating rooms.

Registration at Short Course Office, South College

All Poultry students register on Monday, November 6, for the first unit of work. Registration for Greenkeepers will be held on Tuesday, January 2. Other short courses register on the Monday forenoon of the beginning week, with classes starting at 1:00 P.M. the same day. All fees are payable at College Treasurer's Office at time of registration.

Upon arrival the student should report at the office of the Director of Short Courses, located in South College; call Amherst 900, if telephoning.

APPLICATION FOR ENROLMENT IN WINTER SCHOOL

I hereby make application for admission to the following Winter Short Courses:

Date.....

Name .....

Home Address .....

Business Address .....

Age ..... Present Occupation .....

Previous Schooling .....

Check special course or courses in which you desire to register.

1. The Winter Course in Poultry Raising
   Unit 1 (Nov. 6-24)
   Unit 2 (Dec. 4-15: Jan. 2-5)
   Unit 3 (Jan. 8-26)
2. Ten-day course in Dairy Bacteriology (Jan. 2-13)
3. The Five Day Dairy Courses:
   (a) Milk and Cream Testing: Analyzing and Inspecting Milk Products (Jan. 15-20)
   (b) Milk Plant Operation and Manufacture of Surplus Milk Products (Jan. 22-27)
   (c) Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes, and Freezing (Jan. 29-Feb. 3)
   (d) Ice Cream Making for Experienced Men (Feb. 5-10)
4. Five-day Short Course for Tree Wardens and Town Foresters (Mar. 25-Mar. 30)

Mail this blank to Roland H. Verbeck, Director of Short Courses, Massachusetts State College, Amherst, Mass.

NOTE—File application blank in back of catalogue if for Greenkeeping Course.

WINTER COURSE IN POULTRY RAISING

November 6, 1939 to January 26, 1940

General Information

This nine-week short course will begin on November 6, 1939 and class work will close on January 26, 1940. Students will register at the Short Course Office on Monday, November 6, from 9:00 A.M. to 12:00 M. Classes begin at 1:00 P.M. the same day.

Thanksgiving Day recess is from Friday, November 24, at 12:00 M., and continues to Monday, December 4, at 8:00 A.M. Christmas vacation extends from December 15, 5:00 P.M., to January 2, at 8:00 A.M.

The number of students will be limited to twenty; unless six students register the course will not be given. Applications should be sent early as students will be accepted in the order of their application. (See blank on page 4.)

Aim.—The purpose of this course is to give the students a good survey of the entire field of poultry production and cover the work as intensively as time will permit. It is designed for those who wish to follow poultry keeping as a vocation and who can spend but a short time in preparation.

Facilities.—The College poultry plant of 1000 birds, equipped with modern incubators and brooders of various kinds, together with other adequate equipment and laboratories, will be at the service of students in carrying on their work. Several lecture and laboratory rooms and considerable new equipment has been added recently.

The M. S. C. Poultry Club, a student organization, meets twice a month for special discussions on current topics and lectures by prominent poultrymen or specialists.

Entrance Requirements

There are no entrance examinations for admission, but students must be at least eighteen years old and have educational training through the elementary school, that is, eighth grade.

Tuition and Expenses

There is a tuition fee of $9.00 for the full course, or $3.00 for each three-week unit. A registration fee of $5.00 will be charged for the full course and a $2.00 fee for each three-week unit. These fees must be paid at the time of registration and need not be sent in advance. One or more field trips may be required.

Board may be secured at the College dining hall, cafeteria service, for $6.00 per week and rooms in private houses near the campus cost $2.50 to $4.00 a week. Textbooks will cost $5.00 to $10.00. One hundred dollars should cover all necessary expenses for the full course.

Rooms may be secured at time of registration from approved lists at Short Course Office.

CALENDAR 1939—1940

First Term November 6-24
Second Term December 4-15: January 2-5
Third Term January 8-26

SCHEDULE OF CLASSES BY TERMS 1939—1940

First Term		*Second Term*		*Third Term*	
W-1 Judging	7 hrs.	W-4 Feeding	7 hrs.	W-7 Management	7 hrs.
W-2 Marketing	7 hrs.	W-5 Incubation	7 hrs.	W-8 Brooding	7 hrs.
W-3 Breeding	7 hrs.	W-6 Housing	7 hrs.	W-9 Diseases	7 hrs.

Description of Courses

W-1. Poultry Judging.—A study of the characters effected by egg production and those that limit egg production in the individual. Trapnested birds with known records are constantly used to check the student's judgment in estimating production. This knowledge has direct applicability in the constant elimination of non-producers from the flock, and the selection of outstanding breeders.

W-2. Marketing Poultry Products.—This course covers candling and grading of eggs, market classification of poultry and eggs, judging eggs, fattening, killing, picking, drawing and judging of live and dressed poultry.

W-3. Poultry Breeding.—The course combines in class and laboratory genetic theory and breeding applications. The various methods of selection are studied. The vital data about each breeder is recorded and studied in an up-to-date system of pedigree record keeping.

W-4. Poultry Feeds and Feeding.—This course embraces a study of the fundamental principles of nutrition, and their application to the problems of feeding the poultry flock—the most expensive item in the grower's budget. Feeding the growing stock, the laying flock, and fattening are all included.

W-5. Incubation.—A study of incubation principles and practices is made in conjunction with the incubators in the well-equipped cellar at the College plant.

W-6. Poultry Housing.—A careful study is made of the various physical and biological factors which are involved in keeping houses comfortable, dry and hygienic. The several types of houses on the College plant furnish good practice and study material.

W-7. Poultry Farm Management.—The modern trends of commercial poultry farm organization are studied by the survey method. Each student will prepare detailed plans for a farm he now owns or might hope to develop in the future. These plans will emphasize and correlate the work in breeding, incubation, brooding, growing, market egg and meat production, marketing and accounting.

W-8. Brooding.—Brooding, as one of the most important phases of the poultry industry, is taught with the aid of modern equipment such as coal burning and electric brooders, and several kinds of battery brooders.

W-9. Disease Prevention.—Embraced in this course are studies of normal and pathological anatomy; sanitary programs of disease control; and the use of disinfectants, vermifuges and remedies of known efficacy.

This course is so organized that a student may take any term or combination of terms that he wishes, completing the course in succeeding years if it is found necessary.

WINTER COURSE FOR GREENKEEPERS

January 2 to March 15, 1940

A specialized course for men engaged in the profession of greenkeeping, or members of green committees. The courses are so arranged that all the factors of successful turf management are discussed individually and particularly in their relation to one another. The subjects as outlined can be effectively studied during the winter months.

General Requirements

An applicant for this school must be either a member of the green committee, a greenkeeper, or must have had experience on a golf course, and the application blank must be countersigned by the greenkeeper and chairman of the green committee.

No entrance examinations are required, but it is expected that the student will have a reasonable education in the English language.

The number of students is limited.

The college reserves the right to reject any applicant obviously unqualified for the work, or to dismiss any student for misconduct, or failure to properly meet the requirements of the course.

The winter school certificate will be given only to those who complete the full course with credit. A student may register for the first five weeks and complete the course for certification the following year. Matriculation fee for one-half term is $9.00.

Registration January 2. Classes begin January 3.

Courses Offered

Course	*Weekly Periods*	*Length of Course*	
Botany	1 Laboratory,	2 Lectures	Full Term
Entomology		1 Lecture	Full Term
Water Systems	2 Laboratories,	3 Lectures	Five Weeks
Drainage	2 Laboratories,	3 Lectures	Five Weeks
Equipment	3 Laboratories,	2 Lectures	Five Weeks
Managerial Problems	3 Laboratories,	1 Lecture	Five Weeks
Grasses and Turf Culture	3 Laboratories,	2 Lectures	Six Weeks
Cost Keeping and Analysis	3 Laboratories,	2 Lectures	Four Weeks
Soils and Fertilizers	2 Laboratories,	2 Lectures	Full Term

Forum and special lecture hour daily during full term.

Description of Courses

I. Water Systems.—A study of standard types of water systems, with particular reference to the relation of size of pipe, pressure and nozzles, to the flow and delivery of water. *Professor C. I. Gunness*

II. Soils and Fertilizers (Special for Greenkeepers).—Fundamental properties of soils and their management as related to golf green conditions will constitute the main part of the course. The study of fertilizers and their uses will be made as complete as possible. Individual problems and discussions will be given all the time and attention warranted.

Department of Agronomy

III. Equipment.—All major and minor equipment and materials used in golf course maintenance are not only thoroughly studied, but the factors influencing their economic use and possible cumulative effect upon the cultural condition of the turf are noted. *Assistant Professor L. S. Dickinson*

IV. Managerial Problems.—This course uses for its laboratory a very large and complete model of a golf course, about which the many problems of a greenkeeper are studied and the influencing factors noted.

The making and presentation of reports to green chairmen and committees is also a part of this course. *Assistant Professor L. S. Dickinson*

V. Grasses and Turf Culture.—At the completion of this course the student should be able to identify the various turf grasses and to thoroughly understand their cultural requirements. The various cultural practices and their effects are carefully studied and turf diseases and pests are also included in this course.

Assistant Professor L. S. Dickinson

VI. Drainage.—The entire problem of land drainage will be discussed and practical problems worked out. The student will be taught the use of the level and how to set ditch grades. *Assistant Professor M. J. Markuson*

VII. Botany for the Greenkeeper.—Laboratory demonstration and lecture discussions dealing with the living plant and its parts and consideration of the work performed by each part. *Assistant Professor W. H. Davis*

VIII. Entomology for the Greenkeeper.—This course contains a brief introduction as to what insects are and their relationships. The greater part of the course will be devoted to identification, life history and control measures of insects, damaging greens. *Dr. Frank R. Shaw*

IX. Cost Keeping and Analysis.—The value of cost keeping and its analysis will be demonstrated, and a method of cost keeping will be taught. The many factors that enter into the cost will be noted, analyzed and adapted to individual problems. The distribution and directing of the workmen will also be studied.

Assistant Professor L. S. Dickinson

Forum and Special Lecture Hour.—One hour is set aside daily for a summarization of the preceding day's work, or for discussions with any visiting greenkeeper, green chairman, or for special lectures. *Assistant Professor L. S. Dickinson, Leader*

Information

For further information write to the Director of Short Courses, or to Professor Lawrence S. Dickinson, Department of Agronomy, Massachusetts State College, Amherst, Massachusetts.

ADVANCED SCHOOL FOR GREENKEEPERS

Admission to this school is limited to those who have previously attended the regular Winter School for greenkeepers at this institution.

Two courses are offered, each having a different curriculum.

Course A.—January 2 to February 2; Course B.—February 5 to March 11.

Expenses

	Tuition	*Registration*	*Health Fee*
One Course Only	$5.00	$2.50	$1.50
Both Courses	10.00	5.00	1.50

WINTER SHORT COURSE IN DAIRY BACTERIOLOGY

(Methods for Testing Milk)

January 2 to January 13, 1940

General Information

Each year numerous requests are received by this department for individual instruction in modern bacteriological methods for testing milk. The majority of these requests are due to the interest of the modern dairy man in the quality of his product, as expressed by results of chemical and bacteriological examinations and a desire to more accurately control production on the farm and in the dairy plant. A two weeks' course on modern testing methods has been designed to meet the need of the dairy man who wishes to provide a means of making these bacteriological tests in his own plant laboratory.

Admission and Registration

There is no prerequisite for the course. Students must be at least eighteen years of age and must have completed the elementary or common schools.

Students should enroll by mail. See special application blank in front of announcement. Early registrations will be given preference.

Ten students will be the maximum number admitted to this course. Unless five students have registered prior to the opening day, the course will not be given.

Tuition, Fees and Expenses

There is a tuition fee of two dollars and each student is required to pay the Treasurer a registration fee of two dollars per course.

Description of the Course

Five afternoons each week will be devoted to laboratory discussions, demonstrations and manipulation of the Breed and Brew, Resazurin, Burri and Standard Plate Methods of examining milk. Each student will be given ample opportunity to perform these tests on numerous milk samples. Instruction will also be given in the correct use and care of the compound microscope.

Mornings may be spent in the department or college library where there are available numerous books and pamphlets on dairy bacteriology and the relationship of milk and milk products to the Public Health.

Information

For further information write to the Director of Short Courses, or to Professor Leon A. Bradley, Massachusetts State College, Amherst, Mass.

WINTER SHORT COURSES IN DAIRYING

January 15 to February 10, 1940

The courses are intended not only for experienced milk plant, ice cream and creamery men, but for men with little dairy experience, who have a desire for knowledge in the various dairy manufacturing fields. Those who are inexperienced should plan to take all four courses. Farm men and women, who are responsible for milk handling, butter making, or the making of soft cheese will find the first and second courses adapted to their needs.

There are no prerequisites for the courses. A certificate showing the subject studied is given at the end of each course to those doing satisfactory work.

Admission

There are no entrance requirements except that the student must be eighteen years of age and must have a common school education.

Registration

Students should enroll by mail. See application blank in front of announcement.

Enrolments for each of the four dairy courses described in the following paragraphs should be made at least three days prior to the beginning of the course. Those failing to enroll by mail may do so on arrival for the course. The work begins for each course on the afternoon of the opening day. Therefore, those enroling should arrive early enough in the morning so that time is available for registering, securing accommodations, etc.

Early registrations are given preference. A maximum of 20 will be adhered to for all courses. Second courses will be given in case the number of registrants warrant it.

All applications for entrance to these courses should be addressed to the Director of Short Courses, Massachusetts State College, Amherst, Mass.

Upon arrival the students should report at the office of the Director of Short Courses in South College, for information concerning rooming accommodation and for registration.

Tuition, Fees and Expenses

There is a tuition fee of two dollars for each course, and each student is required to pay the Treasurer a registration fee of two dollars per course.

Students will need white suits for laboratory work, and may wish to purchase one or more textbooks for each course.

Board may be obtained at the college dining hall at $6.00 a week or in private boarding houses from $6.00 to $7.00. Rent for furnished rooms in private houses varies from $2.50 to $5.00 a week for each occupant.

Description of Courses

Course I. Milk and Cream Testing; Analyzing and Inspecting Milk Products—(January 15—20)

This course is designed to help men and women to become proficient in operating the Babcock test, acidity test, use of the lactometer, the Methylene Blue test and Plate Counts, as well as other methods commonly used in testing, analyzing, and inspecting dairy products.

The course should be of special value to those interested in dairy inspection work, cow testing association positions, or laboratory control work which is essential in milk handling.

Opportunity is given during the course to secure the Massachusetts Babcock Testing certificate.

Course II. Milk Plant Operation and Manufacture of Surplus Milk Products—(January 22—27)

This course should help milk plant and creamery employees to a better understanding of the essentials involved in the scientific handling of milk and creamery products.

Some of the lecture and discussion topics are: general scope of the market milk industry, value of milk as a food, relation of bacteria to milk, sanitary production, marketing, plant construction and selection of equipment, processing, delivery, handling surplus, standardizing, grading, and labeling, and care of milk in the home. Special attention will be given to economic methods of marketing surplus milk through cottage and other soft cheeses, and commercial buttermilk.

Laboratory exercises will cover milk sampling, the scoring of dairies, cream line problems, the scoring of milk, the study of milk plant equipment, milk processing, the manufacture of commercial buttermilk, of cottage, neufchatel, and cream cheese and butter.

Practical application of dairy tests and of lecture work will be carried out in the college creamery and dairy barn.

Course III. Ice Cream; Testing and Analyzing Ingredients Used in Ice Cream Making, the Standardizing of Mixes, and Freezing (January 29—February 3)

This course is planned for those wishing to enter the ice cream business, but who have had no previous experience along this line.

Lecture and laboratory work will cover the selection of ingredients for the ice cream mix, standardizing and calculating the mix, processing the mix, freezing and

ld control, causes and remedies of ice cream defects, etc. Actual experience will secured in making ice cream mixes and freezing work. Different kinds of ice cream ll be made, as well as ices and sherbets. The handling of refrigeration machinery ll be included in this course.

All those enrolled in this course should plan to stay over for the second week's rk in ice cream making.

Course IV. Ice Cream Making for Experienced Men
(*February* 5—10)

This course is designed for those who have had actual experience in ice cream aking and wish to secure a more thorough knowledge of their work.

Lectures and laboratory work will cover a study of various factors affecting effi- ent freezing operations, the effect of variations in composition and manufacture on ality of the finished product, etc. Round table discussions of new methods and cent experimental work, as well as individual problems will be included. Some ecialists in the ice cream business and closely allied fields will speak before the group.

Information

For further information write to the Director of Short Courses or to Professor ilius H. Frandsen, Massachusetts State College, Amherst, Massachusetts.

SHORT COURSE FOR TREE WARDENS AND TOWN FORESTERS

March 25 to March 30, 1940

Description of Course

A course designed to be of use to town tree wardens, city foresters, and others hose major interest is the care of shade trees.

This course was first organized at the request of the Massachusetts Tree War- ens' Association and consists of lectures and field work. The program of the course ill include (a) lectures and demonstrations in the care of shade trees, (b) recogni- on and control of shade tree insects, (c) recognition and control of shade tree dis- ases, (d) characteristics and properties of species desirable for use as shade trees, e) elements of town forestry management, (f) the place of trees in landscaping road- ides, (g) public utility problems with trees, and (h) Shade Tree Law. Field work and emonstrations will be conducted on the College campus where a great variety of hade tree species is available for study.

Program for 1940

Monday— (1) (2) (3) Problems in Shade Tree Management.

Tuesday— (1) Spray Materials and Equipment Used in Gypsy Moth Control. (2) The Control of the European Elm Leaf Beetle in Massachusetts. (3) Wood Rotting Fungi in Shade Trees. (4) Correlation of Trees and Wildlife. (5) The Dutch Elm Disease Problem in Massachusetts. (6) Current Literature of Forest Entomology.

Wednesday—(1) The Protection of Public Wealth in Shade Trees. (2) Roadside Erosion Problems. (3) Landscaping the Roadside. (4) Trees Suitable for Roadside Planting. (5) Shrubs Adapted to Highway Planting.

Thursday— (1) Public Utility Problems Related to Shade Trees. (2) Tree Prob- lems of Public Utilities in New Real Estate Developments. (3) The Work of Municipal Planning Boards in New Real Estate Developments. (4) Forest Products from City and Town Trees. (5) Methods of Prun- ing Trees. (6) Diagnosis of Gas Injury to Trees.

Friday— (1) (2) (3) Fruit Tree Problems as they are Related to the Work
the Tree Warden. Insects, Diseases and Orchard Practices. (4) Ma
aged Forestry—field trip.

Saturday— Legal Problems Involving Shade Trees.

Registration

Students should fill in application blank in front of this bulletin and mail
Director of Short Courses, Massachusetts State College, Amherst, Massachusetts.

Upon arrival the students should report at the office of the Director of Sho
Courses in South College for registration, as the work of the course begins in t
afternoon of the opening day.

Tuition, Fees and Expenses

There is a tuition fee of two dollars and each student must pay the Treasur
a registration fee of two dollars. Total cost $4.00.

Information

For further information write to the Director of Short Courses, or to Profess
Robert P. Holdsworth, Massachusetts State College, Amherst, Massachusetts.

APPLICATION FOR ENROLMENT
IN THE
TEN WEEKS' COURSE FOR GREENKEEPERS
January 2 to March 15, 1940

Date.....

Name .....

Home Address .....

Business Address .....

Age ..... Present Occupation .....

Previous Schooling .....

I hereby certify that the above applicant for the Winter School Course for Greenkeepers is either,—(1) a member of the green committee, (2) a greenkeeper, or (3) an employee of this club.

Signed .....
Greenkeeper

Signed .....
Chairman of the Green Committee

Mail this blank to Roland H. Verbeck, *Director of Short Courses,* Massachusetts State College, Amherst, Mass.

THE STOCKBRIDGE SCHOOL OF AGRICULTURE
A Two-Year Non-Degree Course in Vocational Agriculture

For twenty years the Massachusetts State College in addition to its degree courses has been conducting non-degree courses for students who wish to get fundamental training for some agricultural or related business. More and more, high school graduates, not otherwise prepared for college entrance, whose inclinations are towards the practical field of agriculture are finding the work of this department of the College well suited to their needs.

The work is divided into nine major programs—Animal Husbandry, Dairy Manufactures, Poultry, Floriculture, Fruit Growing, Ornamental Horticulture, Vegetable Gardening, Wildlife Management and Hotel Stewarding for hotel and restaurant operatives, one of which is selected by the student, depending on the job for which he wishes to secure training.

No entrance examinations are required. Minimum age seventeen years; minimum schooling eighth grade. Three hundred and eleven students were enrolled in October 1938.

The first year consists of six months' study at the College and six months of required placement training, under the supervision of the College. During the placement period the student is expected to learn much of the practical side of his particular vocation. He is recommended to a position. These positions are on farms, in dairies, greenhouses, poultry plants. The nature of the position depends on the student's particular objective.

The second year consists of eight months' study at the College. On the completion of the course a diploma is granted. Tuition is $50.00 per semester to residents of the Commonwealth. Semester begins September 30, 1940.

For a complete catalog of the Stockbridge School of Agriculture, containing an application blank, write to Director Roland H. Verbeck, Massachusetts State College, Amherst, Mass.

WINTER SCHOOL ENROLMENT, 1939

Abbott, G. Richard	Andover
Almonte, Alfredo	Providence, R. I.
Anderson, Theodore S.	Hartford, Conn.
Bagg, Vernon S.	South Hadley
Balthazar, Fred	Chicopee Falls
Benson, Robert L.	St. Paul, Minn.
Betzner, Henry E.	Hamden, Conn.
Blanchette, Harvey J.	New Bedford
Bleakney, Robert G.	Springfield
Bradford, Elizabeth	Marshfield
Breed, Arthur G.	Stockbridge
Brett, Charles E.	Glen Cove, N. Y.
Brooks, Charles F.	Montpelier, Vt.
Brown, Frederic M.	Chelmsford
Brown, John C.	Dalton
Brunette, Joseph N.	Ashburnham
Burk, Frederick C.	Swampscott
Cambo, Walter H.	Palmer
Carson, Frank E.	Westfield
Casey, Edward J.	Rye, N. Y.
Caverly, Frank L.	Pittsfield
Champagne, Roland A.	South Bellingham
Chapin, Orville W.	West Allis, Wis.
Christopher, Albert	Feeding Hills
Coghill, John R.	Orland Park, Ill.
Colby, Clayton W.	Lowell
Collins, John J.	Worcester
Copeland, George	Middletown, R. I.
Craig, Carl W.	South Athol
Davis, Glenn P.	Framingham
Davis, Wesley H.	Spencer
DeLoria, Edward B.	Chicopee
DiBuono, Sal	New Rochelle, N. Y.
Drake, Donald R.	Somerville
Draper, James S.	Ayer
Ervine, James	Tulsa, Okla.
Feinberg, Aaron	Brockton
Ferguson, Alex	New Brighton, N. Y.
Flynn, John H.	Pittsfield
Franzman, Meyer	New Haven, Conn.
Gelinas, Harold P.	Rockland
Gill, John J.	Belmont
Glesmann, Edward	Holyoke
Goodreau, Joseph P.	Palmer
Haberkorn, Gordon J.	St. Paul, Minn.
Hamilton, Harry W.	Middleboro

Harley, John G.	LaGrange, Ill.
Harthan, Harold C.	West Boylston
Hatch, Stanley W.	East Saugus
Hebert, V. Leslie	Weymouth
Hellams, James I.	Greenwood, S. C.
Hoogeveen, John A.	Tewksbury
Horrigan, Patrick J.	Portland, Me.
House, Arthur G.	Ludlow
Hutchinson, Scott A.	Montpelier, Vt.
Hyland, Tom W.	Springfield
Jackson, Samuel Q.	Andover
Johnson, Mel G.	St. Paul, Minn.
Johnston, Walter R.	Terre Haute, Ind.
Jones, John A.	Peabody
Jones, Philip H., Jr.	Shelton, Conn.
Kaelble, Herman	Pleasantville, N. J.
Kane, Thomas F.	Fitchburg
Kates, Sam	Springfield
Keating, Joseph	Willimansett
Kelleher, Jack J.	Brockton
Kelly, Emmett V.	Syracuse, N. Y.
Kershlis, William R.	Amherst
Kingsbury, Harlan W.	Braintree
Kowalsky, Leon P.	Pequabuck, Conn.
Kulig, Helen M.	Indian Orchard
Kulig, Victoria H.	Indian Orchard
Kusiak, Harry	Chicopee Falls
Lawson, Arthur C.	Marlborough
Lawton, Robert H.	Springfield
Lundell, Warren	West Boylston
Maciolek, Joseph	Chicopee
Mann, Fred W.	Inwood, N. Y.
Marrin, James J.	Holyoke
Masciocchi, Emil A.	Fitchburg
Mears, Gardner C.	Watertown
Mutter, Francis J.	Easthampton
McDonough, James J.	Philadelphia, Penna.
McGovern, Terrence J.	Pittsfield
McKenzie, Edward A.	Winchester
Nelson, John	Middlebury, Conn.
O'Connor, James V.	Springfield
O'Doherty, John E.	Stoneham
Petterson, Carl R.	Lexington
Pettingill, William S., Jr.	Salisbury
Phelps, Walter E.	Sudbury
Pillion, James E.	Hartford, Conn.
Pinelli, Peter A.	New York City, N. Y.

Plaza, Frank J.	Reading
Prime, Eugene R.	New London, Conn.
Provenzani, Eugene M.	Leominster
Ralston, Frederick R.	Mattapan
Ramsey, Harold L.	Westboro
Rice, Burton H.	Billerica
Rogers, Elmer J.	Athol
Russell, Lloyd	New Haven, Conn.
Ryan, Thomas E.	Peabody
St. John, Amos A.	Amesbury
St. John, George	Lee
Sanderson, Walter W.	Greenfield
Sawyer, Walter R.	Boston
Scharrett, John L.	East Taunton
Shaw, Charles H., Jr.	Amherst
Sherman, Homer H.	Savoy
Skoczylas, Stanley J.	Ware
Soitz, Victor P.	Blue Island, Ill.
Sowerby, Clifton E.	Marlboro
Sperandio, Anthony J.	Marlboro
Sperry, Lawrence R.	Saugus
Stevens, Charles A.	North Adams
Stolman, Herman	Wallingford, Conn.
Stremenski, Stanley J.	Thorndike
Tashjian, Souren M.	Somerville
Tetrault, Arthur A.	Fall River
Tillgren, Robert E.	Brockton
Twiss, Grover C.	Holyoke
Twohig, Edward, Jr.	Holyoke
Vigeant, Adlaw J.	Holyoke
Voland, Leon J.	Branford, Conn.
Vrona, John E.	Oregon, Ill.
Wilbar, George C.	Orange
Yarrows, Frank J.	Hatfield

Bulletin

MASSACHUSETTS STATE COLLEGE

GRADUATE SCHOOL

1939 - 1940

Bulletin
MASSACHUSETTS STATE COLLEGE

Graduate School Number
1939 - 1940

The Graduate School Catalogue for the sessions of 1939–40 is part of the Seventy-sixth Annual Report of Massachusetts State College and in conjunction with the general catalogue of the College it constitutes Part II of Public Document 31 (Sec. 8, Chapter 75, of the General Laws of Massachusetts.)

Amherst, Massachusetts

Volume XXXI November, 1939 Number 8

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CALENDAR

1940.

January 22-31, Monday-Wednesday	Final Examinations
January 31, Wednesday, 5:00 P.M.	First Semester ends
February 5, Monday, 8:00 A.M.	Second Semester begins
February 22, Thursday	Holiday, Washington's Birthday
March 23-April 1, Saturday, 12 M.-Monday, 8:00 A.M.	Easter Vacation
April 19, Friday	Holiday, Patriot's Day
May 30, Thursday	Holiday, Memorial Day
May 29-June 7, Wednesday-Friday	Final Examinations
June 7, Friday	Second Semester Closes
May 31-June 3, Friday-Monday	Stockbridge Commencement
June 7-10, Friday-Monday	Commencement
September 11-13, Wednesday-Friday	Entrance Examinations
September 16, Monday	1st Semester begins for Freshmen
September 18, Wednesday	Opening Convocation
September 19, Thursday	All class schedules start
September 30, Monday	1st Semester begins for Stockbridge Freshmen
October 1, Tuesday	1st Semester Stockbridge Seniors
October 12, Saturday	Columbus Day
November 11, Monday	Armistice Day
November 27-December 2, Wed. 12 M.-Monday, 8:00 A.M.	Thanksgiving Recess
December 20-January 6, Friday, 12 M-Monday, 8:00 A.M.	Christmas Recess

1941.

January 20-29, Monday-Wednesday	Examinations
January 29, Wednesday	1st Semester Closes
February 3, Monday	2nd Semester Begins
February 22, Saturday	Washington's Birthday
April 5-14, Saturday, 12 M.-Monday, 8:00 A.M.	Easter Recess
Easter, April 13	Passover April 12-13
April 19, Saturday	Patriot's Day
May 30, Friday	Memorial Day
May 31-June 2, Saturday-Monday	Stockbridge Commencement
June 6-9, Friday-Monday	Commencement

THE TRUSTEES OF THE COLLEGE

Organization of 1940.

MEMBERS OF THE BOARD.

	TERM EXPIRES
JOHN F. GANNON of Pittsfield	1940
DAVIS R. DEWEY of Cambridge	1940
JOSEPH W. BARTLETT of Boston	1941
PHILIP F. WHITMORE of Sunderland	1941
JOHN CHANDLER of Sterling Junction	1942
FREDERICK D. GRIGGS of Pittsfield	1942
NATHANIEL I. BOWDITCH of Framingham	1943
WILLIAM C. MONAHAN of Framingham	1943
JAMES T. CASSIDY of Boston	1944
MRS. ELIZABETH L. MCNAMARA of Cambridge	1944
MRS. KATHARINE G. CANAVAN of Amherst	1945
JOSEPH B. ELY of Westfield	1945
CLIFFORD C. HUBBARD of Norton	1946
DAVID J. MALCOLM of Charlemont	1946

MEMBERS EX OFFICIO

His Excellency LEVERETT SALTONSTALL, *Governor of the Commonwealth.*
HUGH P. BAKER, *President of the College.*
WALTER F. DOWNEY, *Commissioner of Education.*
WILLIAM CASEY, *Commissioner of Agriculture.*

OFFICERS OF THE TRUSTEES.

His Excellency, The Governor, LEVERETT SALTONSTALL, of Boston, *President.*
NATHANIEL I. BOWDITCH of Framingham, *Vice-President.*
ROBERT D. HAWLEY of Amherst, *Secretary.*
FRED C. KENNEY of Amherst, *Treasurer.*

The Graduate School Staff.

HUGH P. BAKER, *President of the College.*
FRED J. SIEVERS, *Director of the Graduate School.*
Dean of the College.
Heads of all Divisions.
Heads of Departments in which Graduate Courses are offered.
Professors, Associate Professors and Assistant Professors in charge of Graduate Courses.

The Graduate School Advisory Committee.

FRED J. SIEVERS, *Director of the Graduate School,* Chairman.
WILLIAM L. MACHMER, *Dean of the College.*
LEON A. BRADLEY, *Professor of Bacteriology.*
JOHN B. LENTZ, *Head of the Department of Veterinary Science.*
A. ANDERSON MACKIMMIE, *Head of the Division of Liberal Arts.*
CHARLES A. PETERS, *Professor of Inorganic and Soil Chemistry.*
RALPH A. VAN METER, *Head of the Division of Horticulture.*
WINTHROP S. WELLES, *Head of the Department of Education.*

GENERAL INFORMATION.

HISTORY.

Graduate courses leading to the degree of doctor of science were offered in botany under President Clark and in chemistry under Professor Goessmann as early as 1876. No candidate, however, completed the requirements for that degree. It was not until 1892, under President Henry H. Goodell, that courses leading to the degree of master of science were offered. This degree was first conferred in June, 1896, on two candidates. Graduate courses leading to the degree of doctor of philosophy were first offered in 1897, with chemistry, botany and entomology as major and minor subjects. The first degree was conferred on one candidate in June, 1902.

In the early years the graduate work was conducted under the direct administration of the President in conjunction with the four year courses. The demand for advanced work increased, however, and in June, 1908, the trustees made the Graduate School a separate unit in the College and appointed a director. Beginning with July 1, 1930, the responsibilities of the Graduate School were combined with those of the Agricultural Experiment Station. This arrangement is proving mutually beneficial by making the staff and equipment of the Experiment Station available for service in the Graduate School, and in turn providing an opportunity to utilize the services of graduate students in organized research projects.

LOCATION AND LANDS.

Massachusetts State College is located in Amherst, a town of about six thousand people, overlooking one of the most picturesque sections of the Connecticut Valley. From the standpoint of teaching material in the field of science and agriculture, the location is ideal. Amherst is eighty-eight miles from Boston, fifty miles from Worcester, twenty-five miles from Springfield, eighteen miles from Greenfield and eight miles from Northampton. Busses connect the town with Northampton, Greenfield, Holyoke and Springfield, or it can be reached direct over the Ceneral Vermont Railroad. The campus consists of a tract of approximately seven hundred acres, lying about a mile north of the village center. The College is well provided with modern buildings and equipment, description of which may be found in the general catalogue.

PURPOSE AND SCOPE OF THE GRADUATE SCHOOL.

The purpose of the Graduate School is to provide qualified students with proper guidance in the methods of advanced study and research. Courses leading to the degree of doctor of philosophy, master of science, and master of landscape architecture are available. Students who desire advanced courses but who do not wish to become candidates for an advanced degree are also admitted.

Doctor of Philosophy.

Candidates for the degree of doctor of philosophy are required to pursue study in three subjects, one of which is designated as the major, and the others as minors. An original thesis is considered a part of the major subject. The degree is conferred upon graduate students who have met the following requirements:—

1. The devotion of at least three years to three subjects of study and research.
2. The earning of not less than ninety credits of which not less than sixty shall be in the chief or major subject, and not less than fifteen in each of two minor subjects.
3. The preparation of a satisfactory thesis.

4. The passing of final examinations, written and oral, in both the major and minor subjects.
5. The presentation of evidence of a working knowledge of both French and German.
6. The passing of a public oral examination.
7. The payment of all College fees and expenses.

It should be emphasized that the requirements for this degree are not computed primarily in terms of time and credits but that the degree is conferred only upon such students as have reached satisfactory attainment in some special branch of learning.

Master of Science.

Candidates for the degree of master of science are required to pursue study in two subjects, one of which is designated as major and the other as minor. When desirable and approved by the director, the minor may be made up of subjects from more than one department. An original thesis is considered a part of the major subject.

The degree is conferred upon graduate students who have met the following requirements:—

1. The devotion of at least one year to two subjects of study and research.
2. The earning of not less than thirty credits, of which approximately two thirds shall be in the major subject.
3. The preparation of a satisfactory thesis in the major subject.
4. The passing of final examinations, written and oral, in the major subject.
5. The payment of all College fees and expenses.

Master of Landscape Architecture.

Candidates for the degree of master of landscape architecture are expected to conform to the established courses as specified by the department of landscape architecture. The degree is conferred upon graduate students who have met the following requirements:—

1. Work covering at least three years, of which a minimum of one and one-half years must be devoted to study in residence, and a minimum of one year spent in practice outside of the College, specific requirements concerning the nature of such practice to be laid down by the department.
2. Submission of a complete written report on the work done in practice outside of the College.
3. Written approval from the employer as to the quality of service during the period devoted to practice outside of College.
4. Preparation of a satisfactory thesis.
5. The presentation of convincing evidence of genuine aptitude for some branch of landscape architecture as design, construction or management.
6. Completion of final examinations.
7. Payment of all College fees and expenses.

The degree of bachelor of landscape architecture may be earned upon the completion of one year of specialized work in that field. (See page 37.)

ADMISSION.

Admission to the Graduate School will be granted:—

1. To graduates of Massachusetts State College.
2. To graduates of other institutions of good standing who have received a bachelors degree substantially equivalent to that conferred by this College.

ENROLLMENT FOR A DEGREE.

Admission to the Graduate School is not to be interpreted as implying admission to candidacy for an advanced degree in any given department. Such candidacy is subject to specific requirements laid down by the several departments, and the student must secure the approval of the head of the department in which he desires to major before he can become a candidate for a degree in that subject.

STUDY IN RESIDENCE.

It is understood that, in general, graduate credit will be granted only for courses pursued in residence, that is, in regularly approved courses conducted by a qualified member of the staff of Massachusetts State College.

Under certain conditions, and then only by special arrangement with the director of the graduate school, credit earned elsewhere will be accepted to apply on the requirements for the degree.

Non-Degree Enrollment.

Graduate work may be taken by students who are not candidates for a degree. Such enrollment permits the special privilege of a wider range in the selection of courses. The courses selected should, however, bear in appropriate relation to one another and be within the confines of the preparation of the student. A statement of the subjects chosen must, in each case, be submitted to the director of the Graduate School for approval.

Prerequisites.

In case an applicant has not completed in his undergraduate work as much of the subject he desires to select for his major study as is required of graduates of Massachusetts State College, he will be expected to pursue such undergraduate courses in that subject as the head of the department may consider necessary, without credit toward the advanced degree.

In the case of minor subjects for advanced degrees, credit begins to accrue from the point where the previous training of the applicant ended, whether it be graduate or undergraduate in its rating at this College—subject, however, to such limitations as may be fixed by the department concerned.

General Statement.

A working knowledge of French and German is considered important for successful graduate work in practically all the major lines, and is required for the doctor of philosophy degree. Students not offering modern language for admission will be given an opportunity to acquire same along with their graduate work.

The courses listed under departmental statements in the succeeding pages constitute the principal and characteristic work of the graduate student.

The College reserves the right to make changes in the requirements for degrees without notice.

COURSES OFFERED.

Doctor of Philosophy—Major Subjects.

Courses available as major subjects for the degree of doctor of philosophy:—

Agricultural Economics and Farm Management
Economics
Entomology

Agronomy
Bacteriology
Botany
Chemistry
Food Technology
Pomology
Poultry Science

Master of Science—Major Subjects.

Courses available as major subjects for the degree of master of science:—

Agricultural Economics and Farm Management
Animal Husbandry
Agronomy
Bacteriology
Botany
Chemistry
Dairy Industry
Economics
Education
Entomology
Floriculture
Home Economics
Horticultural Manufactures
Olericulture
Pomology
Poultry Science
Psychology
Sociology

Master of Landscape Architecture.

Courses available for the degree of master of landscape architecture:—

Landscape Architecture

Minor Subjects.

Courses available as minor subjects:—

Agricultural Economics and Farm Management
Agronomy
Animal Husbandry
Bacteriology
Botany
Chemistry
Dairy Industry
Economics
Education
English
Entomology
Floriculture
Forestry
French
Geology
German
History
Home Economics
Horticultural Manufactures
Landscape Architecture
Mathematics
Olericulture
Philosophy
Physical Education
Physics
Physiology
Pomology
Poultry Science
Psychology
Sociology
Veterinary Science
Wildlife Management
Zoology

Theses.

A thesis is required of each candidate for an advanced degree. It must be on a topic belonging to the candidate's major subject, and must indicate that its writer possesses the ability and imagination necessary to carry on independent, constructive thinking. The following rules should be adhered to in the preparation and presentation of a thesis:—

1. The objective of a thesis should be an attempt to make real contribution to knowledge and practice. When completed it should be of a quality worthy of publication as a contribution from the department concerned.

2. The thesis, in its completed form, will be judged largely upon the ability of the author to review literature and reach definite deductions; to formulate a problem, plan a method of attack, and work out a solution; and to summarize his material and draw conclusions. Scholastic attain-

ment in writing and presenting the results of the study will also be an important factor in the evaluation. No thesis markedly poor in its English will be accepted.

3. After the student, in consultation with his major adviser (head of the department in which the student selects his major), decides upon a thesis subject, he is required to submit an outline to the director of the Graduate School. The director, with this as a basis, selects from the graduate staff a thesis committee to which the student then submits the outline for approval. This committee will, thereafter, have direct charge of all matters pertaining to said thesis, and it is recommended that the student use the advice available from this source in the progress of his research. The thesis must have the approval of this committee before arrangements are made for the final examination for the degree.

4. Three complete, bound copies of the thesis, including drawings and any other accessories, are required by the graduate school office in order that the files in the director's office, the College library and the department in which the thesis was prepared may be supplied.

5. If the thesis is printed, whether in periodical or book form, the fact that it is a thesis submitted for an advanced degree at Massachusetts State College shall be explicitly stated in the title itself or as a footnote on the front page. Such modifications as may be deemed necessary for publication shall have the approval of the director.

6. Because of the time required to give adequate consideration to the research conducted by the student, it is highly desirable that theses be submitted to the committee, in the case of doctors' theses, not later than March 15, and in the case of masters' theses, not later than May 15 of the academic year in which the degrees are to be conferred. The theses in their final form shall be deposited with the director by June 1.

7. If typewritten, whether designed for publication or to remain in the typewritten form, the size of the sheet, the arrangement of the title page, the general structure of the thesis, the character of the paper, and the binding must conform to definite standards.

A. *Size of sheet.* Size of sheet must measure 8½ x 11 inches.

B. *Form of title page.* The title page must be arranged in this order:—
   a. Subject.
   b. Name of author.
   c. "Thesis submitted for degree of—".
   d. "Massachusetts State College, Amherst."
   e. Date.

   and should be distributed over the page as artistically as possible.

C. Following the title page, the arrangement may take such form, variable of course with the subject matter, as is illustrated below:—
   a. An analytical outline of thesis.
   b. An introductory statement in which the purposes of the author are set forth.
   c. The body of the thesis composed of literature critically reviewed and deductions made, formulation of method of attack or procedure, and results secured. (All literature reviews and any work done by others should be so separated that no question can be raised as to which portion of the thesis represents the original investigation. It should be clearly kept in mind that *compilation* is not considered original investigation.)
   d. Summary and conclusions.
   e. Bibliography. (This should have the approval of the chairman of the thesis committee before final arrangement.)
   f. Acknowledgments.

g. Statements of approval signed by members of the thesis committee.

D. *Paper.* See sample in College store.

E. *Binding.* See sample of binding in director's office.

8. All theses are the property of the College and subject to the will of the director of the Graduate School.

FINAL EXAMINATIONS.

For the degree of doctor of philosophy final examinations on the minors are given upon the completion of the subjects. In the major subject, a written examination, if successfully passed, is followed by an oral examination in the presence of the graduate staff.

For the degree of master of science, or master of landscape architecture, a final examination in the major subject, which may be written or oral, or both, is given by the department concerned.

ESTIMATE OF EXPENSES.

A charge of $50 per semester, payable in advance, which covers tuition, laboratory and student health fees, is imposed on students who are residents of Massachusetts. For residents of other states or foreign countries, this charge is $110 per semester. In cases where students carry less than a full schedule of courses, a special tuition rate is provided. For purposes of definition, all students claiming residence in the State shall at time of admission provide the treasurer's office with an official statement from their town or city clerk as evidence. Also, the student must present evidence of successful vaccination.

Board should not be in excess of $9 per week, with a minimum of about $6. Rooms for graduate students are not available in the College dormitories, but can be rented in private homes at from $15 to $20 per month. The costs of books and incidentals should not exceed $100 per year.

ASSISTANTSHIPS.

Through a fund set aside for that purpose, the College offers a number of graduate assistantships to students. The value of these is limited to $600 per year, and appointment is made for a one-year period. These appointments are especially suited to students who desire to gain teaching experience and make themselves at least partly self-supporting while continuing their education. It should be recognized, however, that, in cases where students render this part-time service in return for the financial assistance extended, the residence time requirements for the degree in question are necessarily longer. Application for appointment to any assistantships should be made to the director of the Graduate School.

FELLOWSHIPS.

The Agricultural Experiment Station in its program of investigation frequently finds it desirable to utilize the services of graduate students qualified to do certain types of technical work required in connection with its several research projects. Funds are available for this purpose and qualified students may be elected to such fellowships. Not infrequently this arrangement affords an opportunity for the student to satisfy his thesis requirement by completing some unit of work within a larger project organized in the research program of the Experiment Station.

In recent years industrial concerns have been rather anxious to have certain investigations undertaken for them by the Experiment Station. For this service they are willing to lend financial support, and in deserving cases it has proven very desirable to accept and utilize these funds for fellowship purposes. At present several fellowships are supported on this

basis. These are proving very satisfactory from the standpoint both of the student and the industry supporting the investigation.

GRADUATE COURSES DURING THE SUMMER.

The College offers opportunities to pursue graduate courses during the summer in connection with the regular Summer School. While provision may be made for special study with several departments during the summer period, the scheduled courses are offered primarily for teachers who seek advanced work in education and closely related subjects for purposes of better preparing themselves for more effective service in the teaching profession. Details regarding courses offered, facilities for study, environment, etc., may be found in the Summer School catalogue, a copy of which is available upon request to the director of Short Courses.

DESCRIPTION OF COURSES

Agricultural Economics and Farm Management.

COURSES FOR MAJOR OR MINOR CREDIT.

126. Economics of Agricultural Production. Credit, 3.
Professor Barrett.

155. Marketing Farm Products. Credit, 3.
Professor Lindsey.

156. Fundamentals of Cooperation. Credit, 3.
Professor Lindsey.

157. Agricultural Credit and Land Appraisal. Credit, 3.
Professor Lindsey.

167. Market Problems and Market Price Policies. Credit, 3.

171. Agricultural Economic Theory. Credit, 3.
Professor Lindsey.

175. Farm Organization. Credit, 3.
Professor Barrett.

176. Farm Operation and Advance Farm Organization. Credit, 3.
Professor Barrett.

179. Principles and Methods of Statistics. Credit, 3.
Professor Lindsey.

180. Advanced Statistics. Credit, 3.
Professor Lindsey.

182. Advanced Farm Operation. Credit, 3.
Professor Barrett.

184. Research Methods and Procedure. Credit, 3.

186. Investigations of Problems in Agricultural Economics and Farm Management. Credit, 1-3.
The Department.

190. Seminar. Each Semester, Credit, 1-3.
The Department.

200. Thesis.
The Department.

Agronomy.

COURSES FOR MAJOR OR MINOR CREDIT.

105. Soil Types of Massachusetts.—Lectures and field travel. Credit, 2.

110. Studies in the Culture of Field Crops.—Laboratory, field, or other problems concerning the tillage of field crops. Credit, 3.

115. The Fertilization of Field Crops. Credit, 3.

125. The Improvement of Field Crops.—Readings, discussions, laboratory or field work in the improvement of field crops by breeding and selection. Credit, 3.

135. Nutrition of Field Crops.—Readings, laboratory and greenhouse work on problems of nutrition. Credit, 3.

136. Grasses.—Studies in the history, distribution, characteristics, commercial uses, and nutrition of grasses. Credit, 3.

137. Fine Turf Culture.—Laboratory and field studies in the establishment and culture of turf grasses. Credit, 3.

145. Studies in Soil Physics.—Problems concerning texture, structure, and other physical properties of soils. Credit, 3.

155. Studies in Soil Management.—Study of a wide range of problems arising in the management of soils for crop production. Credit, 3.

160. Soil Technology.—Includes studies of properties, behavior, and technical utilization of soils. Credit, 3.

163. CHEMISTRY OF THE SOIL.—Includes chemical studies of availability of nutrients, base-exchange studies, etc. Credit, 4.

170. STUDIES OF SOIL FERTILITY.—Investigation of the factors and conditions affecting the productivity of soils. Credit, 3.

175. ORGANIC MATTER OF THE SOIL.—Includes studies of the origin, properties and methods of maintenance of soil organic matter, and its physical and biochemical relations to soil fertility. Credit, 3.

185. FERTILIZERS AND THE SOIL.—Concerning the interrelationships of soils and fertilizers when mixed. Credit, 3.

190. STUDIES IN LITERATURE.—Practice in preparing abstracts and summaries of the literature bearing on selected topics. Credit, 2.

200. THESIS.—For students taking major work in Agronomy. Credit, 10-30.

Animal Husbandry.

COURSES FOR MAJOR OR MINOR CREDIT.

110. NUTRITION OF FARM ANIMALS.—A course dealing with the chemistry and physiology of the digestion, absorption and utilization of feeds. The major portion of the course consists of a study of the literature concerning the phases of nutrition that are of the greatest interest and value to the individual student. Credit, 5.

120. GENETICS OF FARM ANIMALS.—A course dealing with the inheritance of characteristics in the larger farm animals. The work may be based upon herd book and advanced registry data or it may be of an experimental nature with either small laboratory animals or with the larger farm animals. The student will be expected to make a thorough review and analysis of available data in the field of his choice. Credit, 5.

130. PROBLEMS IN LIVESTOCK PRODUCTION.—This course will deal with some specific problem in feeding, management, or production of some specific livestock product such as milk, wool, meat, etc. Assistance will be given in outlining the problem and setting up the experimental procedure and the student will be held responsible for collecting and analyzing the data. Credit, 5.

200. THESIS.—Research work in animal husbandry may consist of historical studies of modern breeds of livestock or experimental studies in animal nutrition or genetics. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

51. THE NUTRITION OF FARM ANIMALS.—This course is designed to give the student a thorough understanding of the physical-chemical processes involved in the work of digestion; the absorption and use of foods; circulation; respiration, excretion; the function of protiens, fats, carbohydrates, minerals, and vitamins in body metabolism; and the functions of those endocrine glands primarily concerned with nutrition. In light of these basic principles, the student is required to calculate balanced rations which will meet the requirements of various classes of livestock.
2 class hours; 1 2-hour laboratory period. Credit, 3.

56. GENERAL LIVESTOCK PRODUCTION.—Studies in the historical and economic development, present status and probable future trends of general livestock production in the United States and especially in New England. Consideration will be given to types of production, systems of management, and methods of marketing.
2 class hours; 1, 2 and 1, 4-hour laboratory period. Credit, 4.

73. ADVANCED MEAT STUDIES.—For Animal Husbandry and Horticultural Manufactures seniors and graduate students. This course deals with the basic techniques in preparing, preserving, and utilizing meat products.
2 2-hour laboratory periods. Credit, 2.

75. ANIMAL BREEDING.—This course is planned to acquaint the student with the facts of reproductive physiology, with the facts and theories of modern genetics, and to show how such knowledge may be utilized through genetic analyses, selection and systems of breeding for the creation of more beautiful and more efficient animal types.
2 class hours; 1, 2 and 1, 4-hour laboratory periods. Credit 4.

76. DAIRY CATTLE PRODUCTION.—This is an intensive course covering all phases of dairy cattle and milk production. It affords an opportunity to seek the solution to the economic, nutritional, genetic, and managerial problems concerned in successful dairying. One period a week will be devoted to talks by outside specialists in the various fields.
4 2-hour laboratory periods. Credit, 4.

81. ANIMAL HUSBANDRY SEMINAR.—The student will select a topic in the field of animal husbandry, prepare an outline and partial bibliography for approval by the class and instructor. When approved, he will write a comprehensive paper on his subject and will also make occasional oral reports of progress to the class throughout the semester.
1 2-hour laboratory period. Credit, 1.

Bacteriology and Physiology.

COURSES FOR MAJOR OR MINOR CREDIT.

Bacteriology.

100. HISTORY OF BACTERIOLOGY.—Studies in the development of bacteriology from the late seventeenth century to the present time, especially planned to show the developments of bacteriology in relation to agriculture, public health, the arts, industry, and medicine. Credit, 3.

120. PHYSIOLOGY OF BACTERIA.—Lectures and laboratory on the nature of the bacterial cell and on nutrition and metabolism with emphasis on certain fundamental aspects of physiological processes and activities. Designed for students specializing in bacteriology and open to others who have sufficient chemistry, general biology, and botany. Credit, 5.

130. SOIL BACTERIOLOGY.—Accurate applications of microchemical methods are demonstrated. Biochemical and biophysical methods for measuring the physiological activities of soil microorganisms are studied. Nitrification, dentrification, and ammonification will be discussed in relation to their influence on soil fertility. Credit, 5.

140. DAIRY BACTERIOLOGY.—Technical procedures used in establishing sanitation in relation to milk production and supply will be discussed. Modern methods involved in the preparation, control, and preservation of milk and dairy products are studied. Credit, 5.

150. FOOD BACTERIOLOGY.—This course deals with some of the laboratory problems originating in the field of Food Technology, class discussions on collateral reading, demonstrations and advanced laboratory procedures. The laboratory work includes a study of (1) the effect of foods and methods of feeding upon the normal bacteriological flora of the intestine; (2) systematic studies of special groups and bacteria involved in the preparation and in the spoilage of foods. Credit, 5.

160. HYGIENIC BACTERIOLOGY.—Special consideration given to organization of disease control campaigns, laboratory management, the relationship of serology, immunology, and bacteriology to municipal, rural, and community health. Bacteriological, immunological, and serological procedures will be presented, and there will be discussion of problems showing their use for improving the condition and environment for human and animal life. Credit, 5.

190. LECTURES AND STUDY OF LITERATURE. Credit, 1 each semester.

200. THESIS.—Some bacteriological problem related to agriculture,

food, or public health. Distributed as may be most beneficial for research work. Time and credit by arrangement. Credit, 10-30.

Physiology.

170. PHYSIOLOGY, HUMAN OR ANIMAL.—This course is planned for those students who have completed all undergraduate physiological requirements in this college or who have the equivalent. This course will be planned to meet the special needs of those who elect it. Work will be available in circulation, intermediate metabolism, neuro-physiological problems and work will be planned on the physiology of excretion. This course will be considered from the standpoint of either human or animal physiology according as the student may elect. Credit, 6.

COURSES FOR MINOR CREDIT ONLY.

Bacteriology.

31. INTRODUCTORY AND GENERAL BACTERIOLOGY.—Designed to make microorganisms real and significant. The laboratory covers the use and proper care of the compound microscope, the preparation of culture media, methods of sterilizing equipment, the isolation and handling of pure cultures, simple and differential staining, studies on classification and cultural and biochemical studies on type species of pathogenic and non-pathogenic bacteria. Individual practice in the isolation and identification of bacterial forms is a required part of the laboratory assignment. The course aims to provide a basis for bacteriological study and interpretation and to furnish such material as will be valuable in understanding agriculture, domestic science, and public health problems.
2 3-hour laboratory periods. Credit, 3.

52. ADVANCED BACTERIOLOGY.—A continuation of Course 31. The identification and differentiation of bacterial species by morphological, cultural, physiological and serological studies. The combined courses give to the student not only a comprehensive picture of various forms of existing bacteria but develop a specialized technique for their cultivation, isolation, and identification.
2 3-hour laboratory periods. Prerequisite, Bacteriology 31. Credit, 3.

61. BACTERIOLOGY. (PUBLIC HEALTH.)—Considers the relation of the human body to its environment in the maintenance of health and the production of disease. The administration and organization of community health, the prevention or control of animal or human diseases of public health significance, are considered. A study of special community health problems and the relationship of these problems to social welfare is discussed.
2 class hours. Credit, 2.

62. BACTERIOLOGY. (PUBLIC HEALTH.)—Sanitation and its relation to agriculture, industry and public health. The microbiological features of air, water, soil, sewage, and refuse; industrial hygiene and the control of municipal and rural sanitary projects are considered.
2 class hours. Credit, 2.

81, 82. APPLIED BACTERIOLOGY.—These two courses covering a full year's work are designed to give the student a working knowledge of present day applied bacteriology. The work in the laboratory is presented in three distinct sections: (1) soil, (2) food, (3) dairy. In soil, such subjects as the number and development of microorganisms in different soils, factors influencing their growth and activity, and changes wrought upon matter in the production of soil fertility, ammonification, nitrification, etc., receive attention. In food, a study of preservation, fermentation, spoilage, and methods of sanitary examination are considered. In dairy, emphasis is placed upon modern methods for examining the sani-

tary quality of milk and milk products. Groups of bacteria normally present, abnormal and normal fermentation, effect of temperature, and the role of milk in the transmission of disease, are some of the subjects receiving special consideration.
2 3-hour laboratory periods. Credit, 3 each semester.
Prerequisite, Bacteriology 52.

85. BACTERIOLOGY. (SEROLOGY.)—This course aims to supplement Bacteriology 52 and is planned to complete work essential for the advanced study in bacteriology and physiological science. This course includes the study, preparation, and standardization of such biological products as antigens, agglutinins, precipitins, hemolysins and complement-fixation bodies, and the use of the same in differential bacteriology and disease diagnosis. Consideration is also given to isohemagglutins and their relation to human blood groups. Class limited to ten students.
2 3-hour laboratory periods. Credit, 3.
Prerequisite, Bacteriology 52.

Physiology.

32. PHYSIOLOGY.—This constitutes the introductory work in physiology and is so planned that those who wish to continue may have some knowledge of the theories and practices of the science. Exercises on basic biological laws are considered, so essential to the comprehension of modern physiology. The study and use of instruments serve to illustrate the various phases presented. Aspects of muscle and nerve physiology, circulation, hemodynamics and alimenation will be considered.
2 class hours; 1 2-hour laboratory period. Credit, 3.

75. PHYSIOLOGY.—This is a continuation of course 32. Physiology of nutrition, including diet, calorimetry, energy exchange, and basal metabolism followed by work on the physiology of elimination. Studies on lymphatics and ductless glands will be included. This course is especially planned to further physiological applications for students in nutrition, bacteriology, and the biological sciences.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Physiology 32.

76. PHYSIOLOGY.—This is a continuation of course 75 and is planned to make demonstrations in advanced neuro-muscular physiology, respiration, circulation and in endocrinology. Special attention will be given to the physiology of the special senses, such as taste, touch, sight and hearing.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Physiology 75.

77. GENERAL PHYSIOLOGY.—This course is planned for those students who have studied organic chemistry and physics. It will be of service to all students in the biological sciences. The discussions and laboratory demonstrations will concern the nature of the processes underlying vital phenomena which are common to most living matter. It will deal exclusively with the fundamental principles which govern activities and life of animals and human beings.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisites, Physics 25 and 26; Chemistry 51 and 52.

Botany.

COURSES FOR MAJOR OR MINOR CREDIT.

100. PLANT PHYSIOLOGY.—The lectures will consider, under the nutrition of the plant: its chemical structure, absorption of various nutrient substances and their changes in the plant, assimilation and dissimilation of carbon and nitrogen by autotrophic and heterotrophic plants; under

changes in the form of plants: growth and form under constant external factors, the influence of variable external and inner factors on growth, form, and development; and under plant movements: the various tropisms, mutations, etc. Supplemental demonstrations, laboratory work and reading.
1 class hour. Credit, 1 each semester.

101. PLANT PATHOLOGY.—A general consideration of the history, nature, and causes of plant disease; parasitism, predisposition, immunity, degeneration, natural and artificial infection, dissemination, epidemics, biological strains, monstrosities and malformations, proliferation, prevention and control, economics of plant diseases. Supplemental reading and reports.
1 class hour. Credit, 1 each semester.

102. PLANT INHERITANCE.—This course is planned to give the student a comprehensive understanding of the principles and facts of plant inheritance. A study is made of plant variations, Mendel's law of heredity, the physical basis of heredity as established by chromosome behavior, pure lines mutations, species, graft hybrids, etc.
1 class hour. Credit, 1.

103. BIOLOGICAL RELATIONS.—Consideration of certain phases of the morphological and physiological adaptations of plants with regard to insect visits; the role of thorns, hairs, tendrils, glands, etc.
1 class hour. Credit, 1.

105. PHYSIOLOGICAL PLANT PATHOLOGY.—This course considers those plant diseases not due to bacterial or fungous parasites, but resulting from unfavorable physical or chemical conditions of the soil; from harmful atmospheric influences, such as dry air, excessive moisture, hail, wind, lightning, frost; from injurious gases and liquids; from lack of or too much light; from wounds. A knowledge of the normal physiology of the plant is required. Demonstrations and assigned readings.
1 class hour. Credit, 1.

106. HISTORY OF BOTANY.—An historical survey of the science; lives of noted botanists; history of certain culture plants, such as wheat, corn, coffee, potato, rice, and their influence on civilization; reading. By arrangement. Credit, 2.

107. METHODS IN DRAWING AND PHOTOGRAPHING FOR THESIS AND PUBLICATION. Credit, 1-2.

110. SYSTEMATIC MYCOLOGY.—Morphology and development of typical species representing the orders and families of fungi; practice in identification, collection and preservation of fungi; systems of classification; collateral reading.
1 class hour.
2 2-hour laboratory periods, one, or two semesters.
Credit, 3 each semester.

111. ADVANCED PLANT PHYSIOLOGY.—The work offered in this course is arranged to meet individual needs. Botany 77 or its equivalent is prerequisite. Credit, 5-10.

112. ADVANCED PLANT PATHOLOGY.—The work offered in this course is arranged to meet individual needs. Botany 75 or its equivalent is prerequisite. Credit, 5-10.

190. COLLATERAL READING.—Extensive reading of botanical literature in English, German and French, designed to give the student a broad knowledge of the science, is required of all major students. Final examinations are based in part upon this reading course. Credit, 1-6.

200. THESIS.—Each major student is required to select a problem in plant pathology or physiology (in other branches at the discretion of the department) for original investigation, and the thesis must embody a dis-

tinct contribution to knowledge. The thesis work counts for not more than 35 per cent of the total number of major credits required for either degree.

COURSES PRIMARILY FOR MINOR CREDIT.

57. MICROTECHNIQUE.—A course in the preparation of microscopic mounts including the celloidin and paraffin methods and involving the use of microtomes and of differential stains.
2 2-hour laboratory periods. Credit, 2.

59. SYSTEMATIC BOTANY OF THE HIGHER PLANTS.—Study of gymnosperms and angiosperms. Lectures deal with the interrelations of the flowering plants and with their ecology, distribution, and economic importance. Laboratory work consists of a critical study of types from the most important natural plant families. Particular emphasis is laid on the flora of Massachusetts. The department herbarium and greenhouses supply material of important tropical forms for study.
2 class hours; 1 2-hour laboratory period. Credit, 3 each semester.

61. THE COMPARATIVE ANATOMY OF GREEN PLANTS.—In the lectures study is directed to the comparative anatonomy of green plants from the evolutionary standpoint. Particular emphasis is laid upon the woody forms both living and extinct. Of the latter, the department is fortunate in possessing excellent sets of micro-preparations and lantern slides.
2 class hours; 1 2-hour laboratory period. Credit, 3 each semester.

75, 76. PLANT PATHOLOGY.—Comprehensive study of diseases of plants; training in laboratory methods and technique, including culture work and artificial inoculation of hosts; miscellaneous diagnosis; study of literature and representative life histories of pathogens. Prepares for civil service, experiment station, and college work.
1 class hour; 3 2-hour laboratory periods. Credit, 4 each semester.

77, 78. PLANT PHYSIOLOGY.—Study of the factors and conditions of (a) plant nutrition, including the taking up of water and mineral substances, the assimilation of carbon and nitrogen, and the release of energy due to the processes of dissimilation; (b) plant growth, including the influence of internal and external factors on growth, the development of reproductive and vegetable organs; (c) plant movements, including those due to the taking up of water, and those of both motile and fixed forms in response to external stimuli. Weekly conferences are held, at which students report on assignments to original sources in the literature.
2 class hours; 2 2-hour laboratory periods. Credit, 4 each semester.

81. PLANT ECOLOGY.—Study of plants in relation to their environment, with special emphasis on the newer field studies, which have given increasing insight into the physical and chemical factors as they influence growth and development in the field and the adaptability of plants to changes in their normal environment. The various types of plant formations and successions are studied, as well as the mutual and antagonistic relations of certain plants.
1 class hour; 2 2-hour laboratry periods. Credit, 3.

Chemisty.

COURSES FOR MAJOR OR MINOR CREDIT.

101. INORGANIC PREPARATIONS.—Laboratory. The preparation of chemical products from raw materials. The manufacture and testing of pure chemicals. The laboratory work is essentially synthetic in nature, and is designed to aid in acquiring a more adequate knowledge of inorganic chemistry than is to be obtained by chemical analysis alone.
Either semester. Credit, 5.
Associate Professor SEREX.

102. ELECTROLYTIC ANALYSIS.—Laboratory. This course includes the separation and determination of some of the common metals such as copper, silver, nickel, lead, cadmium and zinc. Some work of electrometric analysis may also be included such as the titration of iron with dichromate or iron with ceric sulfate and use of the hydrogen, quinhydrone and glass electrodes.
Either semester. Credit, 5.
Assistant Professor FESSENDEN.

103. ADVANCED ANALYTICAL CHEMISTRY.—This course consists of special work to meet the needs of the individual student. It may consist of ultimate analysis, micro-analysis, or analysis of definite classes of materials, fertilizers or insectides.
Either semester. Credit, 3 or 5.
Professor PETERS.

104. ADVANCED PHYSICAL CHEMISTRY.—Laboratory. Measurement of the electrical conductivity of solutions; degree of ionization; ionization constants; per cent hydrolysis of aniline hydrochloride from conductivity measurements; solubility product by the conductivity method; velocity of saponification by conductivity; neutralization point by conductivity; vapor pressure determinations; transport numbers; preparation and properties of colloidal solutions; transition points by dilatometric method; heat of solution of ammonium chloride and potassium nitrate; absorption of iodine by charcoal; determination of hydrogen ion concentration. To each student separate work will be assigned.
Either semester. Credit, 5.
Associate Professor SEREX.

105. ADVANCED ORGANIC CHEMISTRY.—Laboratory. The preparation of compounds not included in courses 51 and 52, such as the Kolbe synthesis of salicylic acid; the synthesis of camphor and of indigo; the preparation of medicinal compounds, e. g., acetanilide, phenacetin and barbituric acids; the preparation of dyes, e. g., rosaniline, malachite green, congo red; the study of the Grignard reaction, etc. To each student, separate work will be assigned.
Either semester. Credit, 5.

106. ADVANCED BIOLOGICAL CHEMISTRY.—Laboratory. An intensive study of special compounds, or processes, involved in the growth or metabolism of either plants or animals, under either normal or pathological conditions. To each student separate work will be assigned.
Either semester. Credit, 5.
Professor RITCHIE.

107. FOOD CHEMISTRY.—A chemical study of the significant constituents in foods: proteins, fats, carbohydrates, food accessories, etc. Methods of analysis as well as their chemical characteristics will be considered. While work will be assigned to meet the needs of the individual at least one period a week will be given over to lecture or consultation. Credit, 5.
Professor RITCHIE.

111. ADVANCED INORGANIC CHEMISTRY.—Lectures and collateral reading. A survey of the fundamental principles of chemistry and a discussion of the descriptive chemistry of the elements based on the periodic table. Attention will be given to some of the less common elements.
Second semester. 1939-40. Credit, 3.
Assistant Professor FESSENDEN.

112. ADVANCED ANALYTICAL CHEMISTRY.—Lectures on iodine as used in analysis. The stability of thiosulfate; the colors with starch; the preparation of arsenic for a standard; the limitations of the dichromate standard; the errors in the reduction of arsenates; the manifold uses of the iodide-iodate reaction; typical processes; micro-methods. The

second half deals with hydrogen ion concentration. Buffers, zwitter ion and indicators.
First semester, 1940-41. Credit, 2.
Professor PETERS.

113. ADVANCED PHYSICAL CHEMISTRY.—Selected topics in physical chemistry. A brief survey of the fundamental theories and recent advances in radioactivity, induced radioactivity, colloidal chemistry and catalysis.
Second semester, 1940-41. Credit, 3.
Associate Professor SEREX.

114. ADVANCED ORGANIC CHEMISTRY.—The lectures will vary with alternate year periods, but, in general, will include a review of the field of organic chemistry along with special topics such as, hydrogenation, hydrolysis, diazotization, esterification, oxidation and reduction, etc., essential oils, perfumes and dyes.
First semester 1941-42. Credit, 3.

115. BIOCOLLOIDS.—An introduction to the principles of surface chemistry that apply to colloid systems. Major consideration given to the emulsions and hydrophillic systems encountered in fields of applied biology. Collateral reading and preparation of literature reviews in the student's special field necessary.
Second Semester 1940-1941. Credit, 3.

116. CHEMICAL THERMODYNAMICS.—A study of the application of thermodynamics to chemical problems.
Second semester. To be given in 1939 and alternate years.
Credit, 2.
Assistant Professor FESSENDEN.

117. PLANT BIOCHEMISTRY.—Lectures on the chemistry of important constituents of plants ,and the relation of these compounds to plant functions and plant products. The chemical nature of plant proteins, fats, carbohydrates, hormones and alkaloids will receive major consideration. Given alternate years.
Second Semester 1939-40. Credit, 3.

121. SEMINAR.—Conferences, reports, or lectures.
Each semester. Credit, 1.
Professor RITCHIE.

175, 176. PHYSICAL CHEMISTRY.—Lectures and laboratory work. A year course. Credit, 3 each semester.
Associate Professor SEREX.

179. PHYSIOLOGICAL CHEMISTRY.—Lectures and laboratory work.
First semester. Credit, 4.
Mr. PARROTT.

186. THEORETICAL CHEMISTRY.—Two class hours.
Second semester. Credit, 2.
Professor PETERS.

188. HISTORY OF CHEMISTRY.—Two class hours.
Second semester. Credit, 2.
Professor RITCHIE.

192. SPECIAL INVESTIGATIONS.—A continuation of Course 92, II for graduate students majoring in chemistry. The student will have the opportunity to continue studying the methods of research. Problems of definite character will be assigned to the student in the various fields of chemistry. It will be necessary for the student to report on pertinent literature. Both semesters. Credit determined by work done.
THE DEPARTMENT.

200. THESIS.—Research, and in the case of a degree, the preparation of an acceptable thesis in agricultural, analytical, organic, physiological,

or physical chemistry, under the direction of the professor in charge of the work. Credit determined by work done.

COURSES FOR MINOR CREDIT ONLY.

51, 52. ORGANIC CHEMISTRY.—Lectures and laboratory work. A year course. 4 credits each semester.

61, 62. QUANTITATIVE ANALYSIS.—Lectures and laboratory work. A year course. 4 credits each semester.

Professor PETERS.

Dairy Industry.

COURSES FOR MAJOR OR MINOR CREDIT.

101. HISTORY AND DEVELOPMENT OF DAIRYING.—A review of the early history of dairying and factors in the industry contributing to its present development. Credit, 3.

102. ICE CREAM PROBLEMS.—A study of existing scientific, technical, and marketing problems in the field of ice cream making. Credit, 3.

103. MARKET MILK PROBLEMS.—Consideration of production, processing, and distribution of milk, the nutritional value of milk, chemical and bacteriological aspects of milk handling. Credit, 3.

104. SURPLUS MILK PROBLEMS.—The economical disposal of seasonal surpluses through cheeses, butter, milk drinks, etc. Credit, 4.

105. DAIRY PLANT MANAGEMENT.—The selection, construction, and arrangement of dairies and dairy machinery, and economical operation of same. Credit, 3.

195. SEMINAR. Credit, 1 each semester.

200. THESIS.—Original research work having a bearing on some important problem in dairying. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

52. MARKET MILK.—A study of the various phases of the market milk industry: sanitary production, transportation, pasteurization and handling in the city plant, marketing, delivery systems, milk and its relation to public health, inspection, milk laws, food value, and advertising. Cultured milk and other milk drinks also are included. Some milk plants are visited. Credit, 4.

75. DAIRY CHEMISTRY.—The various physical and chemical properties of milk, milk products, and their components are studied. Testing and control methods commonly used commercially for milk and dairy products are included; moisture and fat determinations, casein, salt, and acid tests, work with the Mojonnier apparatus, and other applied chemical tests are taken up in the laboratory. Credit, 3.

77. BUTTER AND CHEESE MAKING.—The first half of the semester is devoted to butter making, the remainder to cheese making, condensed and powdered milks. The various phases of the butter industry studied are: separators and cream separation; pasteurization, neutralization, and ripening of cream, preparation of starter cultures; churning, marketing, and scoring of butter; creamery management. The work in cheese making includes cheddar, cream, Neufchatel, cottage, processed cheeses, etc. The manufacture of condensed and powdered milk, and commercial casein is also covered. Credit, 4.

78. ICE CREAM MAKING.—The course includes a study of the principles and practices of ice cream making. The effects of such factors as composition, quality, pasteurization, homogenization, aging and freezing on the finished product are considered. Sherbets, ices, fancy and individual forms, and all flavors of ice cream are studied. Some time is devoted to refrigeration machinery, delivery equipment, and merchandising methods as they are related to the industry. Credit, 4.

79. SEMINAR.—The course consists of a study of research done by the

experiment stations, also a review of foreign literature. Students prepare papers on timely dairy subjects. Frequent addresses are made to the class by visiting authorities in dairying. Credit, 1 each semester.

Economics.

COURSES FOR MAJOR OR MINOR CREDIT.

110. ADVANCED ECONOMIC THEORY.—A study of the classical and non-classical theories of value and distribution. Analysis of fundamental concepts and the relation of these to current problems of production, distribution and exchange. Credit, 3.

Assistant Professor GAMBLE.

111. HISTORY OF ECONOMIC THOUGHT.—A general study of the development of economic thought from its ancient beginnings; the contributions of the various schools; recent changes in economic history.

Credit, 3 each semester.

112. BUSINESS FLUCTUATIONS.—A study of business fluctuations and an analysis of the current business cycle theories. Credit, 3.

Assistant Professor GAMBLE.

113. CENTRAL BANKING.—A study of the organization and policies of the major central banks with special reference to the Federal Reserve System. Credit, 3.

Assistant Professor GAMBLE.

125. APPLIED ECONOMICS.—A course offered primarily for high school teachers (others may elect), which is intended to appraise such current economic questions as the business cycle, taxation, banking, international trade reparations, economic planning, and similar problems in the light of economic principles. Credit, 3 each semester.

Assistant Professor GAMBLE.

140. PRINCIPLES AND PROBLEMS OF LAND ECONOMICS.—This course deals principally with the characteristics and classification of land, present and future uses of land, private property and the control over property, land income and the value of land. Credit, 3.

153. MARKETING AND MARKETING PROBLEMS.—A study of the forces and conditions which determine prices and the mechanism, methods, and problems concerned with transportation, storing and distributing goods. Credit, 3.

Professor CANCE.

154. CORPORATION FINANCE.—An analysis of the financial policies of the corporation as a form of business organization, together with its social implications. Credit, 3.

Mr. COLWELL.

155. THE FUNDAMENTALS OF COOPERATION.—History, principles and business relations. (1) A survey of the development, methods, and economic results of great cooperative movements; (2) the organization of producers and consumers abroad, and the present aspects and tendencies in the United States; (3) the principles underlying successful cooperative endeavor and practical working plans for cooperative associations. Credit, 3.

Professor CANCE.

156. SPECIAL PROBLEMS IN COOPERATION FOR ECONOMIC PURPOSES.—Study, original investigation, and discussion. Every third year, beginning 1933. Credit, 3 each semester.

Professor CANCE.

160. PUBLIC UTILITIES AND THEIR REGULATION.—The study will include the problem of social control of monopolies and industries affected with a public interest. Credit, 3.

THE DEPARTMENT.

161, 162. PUBLIC ADMINISTRATION.—A general survey of the field, the principles and the relationships of public administration.
Credit, 3.
Assistant Professor ROHR.

163. POLITICAL SCIENCE.—Nature and methods of political science; theory of the state; forms, ends and purposes of government; law; constitutions, etc. Credit, 3.
Assistant Professor ROHR.

165. CONSTITUTIONAL LAW.—A study of the constitutional law of the United States. The case system is used. Credit, 3.
Assistant Professor ROHR.

175. CURRENT ECONOMIC PROBLEMS AND LITERATURE.—Department seminar throughout the year. Credit, 1-3 each semester.
Professor CANCE.

176. PRINCIPLES OF TRANSPORTATION.—The development of highway, waterway, and railway transportation, and its relation to the Development of the country; the principles governing the operation and control of transportation agencies; present-day problems. Lectures, text, and field work. Credit, 3.
Professor CANCE.

178. PUBLIC FINANCE.—A study of the principles underlying public expenditures, public borrowing and taxation. Credit, 3.
Assistant Professor GAMBLE.

179. LABOR PROBLEMS.—Reading and investigation. By arrangement.
Credit, 3.
Assistant Professor GAMBLE.

180. SPECIFIC TRANSPORTATION PROBLEMS.—Original study, reading, and reports on certain transportation problems. Alternate years, odd.
Credit, 3-5.
Professor CANCE.

182. ADVANCED BUSINESS ACCOUNTING.—This course covers the problems of partnership and corporation accounting. Considerable time is spent on problems in amortization, depreciation, income, valuation and the preparation, analysis and interpretation of financial statements.
Credit, 3.
MR. COLWELL.

185. ECONOMIC INSTITUTIONS AND PRACTICE IN RELATION TO THE STATE.—Studies in farm relief measures, taxation, bounties, subsidies, government control of commerce and industry. Credit, 2-5 each semester.
Professor CANCE.

191, 192. INVESTIGATIONS IN VARIOUS PROBLEMS RELATED TO ECONOMICS.—Credits to be determined by time spent and reports submitted.

193. SEMINAR.—Problems of government and public administration.
Credit, 3.
Assistant Professor ROHR.

195, 196. COST ACCOUNTING AND BUSINESS PRACTICES.—The Application of the principles of accounting to determine unit and job costs. The construction and interpretation of manufacturing statements is emphasized. Consideration is also given to the design and installation of accounting systems as they differ between various types of business enterprise. Credit, 3.
MR. COLWELL.

200. THESIS.—Research work in economics will be developed by four principal methods; namely: historical, statistical, accounting, and general field investigation. In all instances mastery of research methods includes facility in investigation, tabulation, and interpretation of results.

COURSES FOR MINOR CREDIT ONLY.

51. Business and Industry.—Study of the organization and administration of business enterprise from the point of view of production. The course stresses administrative functions of production, finance, credit, and the relation between government and business. Credit, 3.

Mr. Colwell.

55. Economics of Consumption.—The purpose of this course is a consideration of the importance of consumption in modern industry and commerce. It includes a study of the laws of consumption, standards of living, sources and factors determining family incomes, and of the administration of these incomes as shown by the expenditures of the nation and of various groups. The relation of consumption to the problems of population and to the development of society is also studied. Lectures, assigned readings, and class discussions. Credit, 3.

Professor Cance.

77. Economics of Foreign Trade.—A study of the principles and practices of international trade, including a survey of historical trends of the foreign trade of the United States; the business methods of foreign traders, foreign exchange. Credit, 3.

Assistant Professor Gamble.

81. Principles of Business Accounting.—This course aims to give the student an elementary working knowledge of the principles underlying the accounting system in the gathering, analysis, and interpretation of accounting data and the methods used in accounting and preparing the usual types of business statements for individual proprietorship businesses and partnerships. The use of accounting records as a means of business control, which is emphasized in this course, should be of special value to those students who will later be employed in managerial capacities. Credit, 3.

Mr. Colwell.

85. Business Law.—Land, titles, public roads, contracts, commercial paper, and distinctions between personal and real property. Text, written exercises, lectures, and class discussions. Credit, 3.

Assistant Professor Smart.

Education and Psychology.

COURSES FOR MAJOR OR MINOR CREDITS WITH MAJOR ENROLLMENT IN EITHER GROUP OF SUBJECTS.

Courses for satisfaction of a minor may be selected with credit as indicated, from the undergraduate list in the annual college catalogue, except those numbered 26, 54, 65, and 74, provided pre-requisites have been satisfied. In addition to regular class hours, graduate students shall, at the option of the instructor, meet the instructor for a specified number of hours per semester in each undergraduate subject for discussion of supplementary assignments.

Beginning in September, 1938, each graduate student majoring in Education or Psychology, in addition to course and thesis requirements, will be expected to pass successfully a comprehensive written examination in Education or Psychology.

Education.

Before being admitted to candidacy for the degree with a major in Education, the student must have

(1) two majors (18 hours each) or one major and two minors (12 hours each) in the subject-matter fields to be taught.

(2) approximately 15 hours of such fundamental courses as 54, 65, 74, etc., listed in the undergraduate catalogue. Experience in

teaching may take up part of this requirement at the discretion of the department.

Courses for major credit may be selected from the following list:

102. The Development of Public Education in Massachusetts.—The origin and growth of all types of education under public control from earliest colonial days to the present, with legislation, policies and persons involved. By arrangement. Credit, 2.

Professor Welles.

103. Problems in Vocational Teaching.—The course deals with problems out of the experience of vocational teachers in Massachusetts. Constructive assignments bearing upon individual experiences are worked out in harmony with the campaigns for better teaching in vocational schools. Credit, 3.

By arrangement.

Adjunct Professor Heald of Vocational Division, State Department of Education.

104. Principles of Vocational Education.—A survey of the objectives, history and legal requirements of vocational education in the United States. Credit, 2.

By arrangement.

Adjunct Professor Heald of Vocational Division, State Department of Education.

105. Organization of a Public School Program.—Practical situations faced by superintendents and supervising principals in which things have to be done to set the school machinery in motion. Such considerations as housing, finance, staff, schedule, etc. are worked out to suit a specific community. Credit, 2.

By arrangement.

Professor Welles.

106. General School Supervision.—There are occasional instances of administrative officers who desire to be guided in further study of their own problems in supervision, to get the wider outlook or the more recent detail of such work. This is a course for them and covers matters most pertinent to the needs of the individuals. Credit, 2.

By arrangement.

Professor Welles.

Assistant Professor Purvis.

107. Rural and Elementary Graded Schools.—The place rural education still occupies, changes in process, introduction of arts, health programs, curriculum, etc. The problems of principal of graded school, staff, transportation, lunches, vocational program, extracurricular matters, community relations, etc. Credit, 2.

By arrangement.

Professor Welles.

Assistant Professor Purvis.

110. Contemporary Education.—Comparative studies of education involving European and United States systems. Interviews, reading, reports. Credit, 2.

By arrangement.

Professor Welles.

Assistant Professor Purvis.

120. School Laws of Massachusetts.—A review of the legal relations of the school personnel covering the usual experiences in school and community, presented in a series of selected cases having the support of court decisions. Credit, 2.

By arrangement.

Professor Welles.

137. Socialized Education.—Discussion of the objectives and the

various factors involved in a system of education for increasing its social values. A view of education that tries to offset the effects of present idea of individualism. Credit, 2.

Professor WELLES.

145. CONFLICTING PRINCIPLES IN TEACHING.—A critical analysis of many dualisms in teaching principles in which there is an apparent conflict between two sound ones and an attempt to find the best way to capitalize the good of both. Credit, 2.

Professor WELLES.

167. HISTORY OF EDUCATION.—A survey of educational objectives and practices extending from early times to the present, emphasizing those movements that have most definitely influenced education in many countries. Credit, 2.

Assistant Professor PURVIS.

178. APPRENTICE TEACHING IN AGRICULTURE.—An opportunity offered occasionally to study this type of vocational education by participating in it. The work is that of an assistant teacher under supervision with a schedule of classes to teach and a prescribed line of study to complete. For one or two full semesters off campus. Credit, 3.

By arrangement.

Professor WELLES.

Adjunct Professor HEALD of Vocational Division, State Department of Education.

179. EDUCATIONAL TESTS AND MEASUREMENTS.—The most serviceable tests and scales for measuring school achievement are considered; construction, administration, and interpretation and uses of results are studied and practiced. Credit, 2.

Assistant Professor PURVIS.

180. SUPERVISED PRACTICE.—Now and then a graduate student needs practice teaching. This course is an opportunity for such practice under careful supervision and guidance in a public school. Credit, 2.

Professor WELLES.

Assistant Professor PURVIS.

181. CURRICULUM CONSTRUCTION IN SECONDARY SCHOOLS.—A study of the principles and techniques involved in curriculum building. Recent programs will be studied and evaluated. Readings and reports.

Credit, 2.

Assistant Professor PURVIS.

182. SECONDARY SCHOOL ADMINISTRATION.—This course deals with important problems of secondary school administration taken from actual situations in schools. The general principles involved in supervisory programs, in finance and maintenance, in teacher relationships, in pupil groupings and organizations, etc., are discussed and evaluated.

Credit, 2.

Assistant Professor PURVIS.

183. SPECIAL PROBLEMS.—There are occasional challenges that have to be met when they appear. These are problems of method, demonstration, fact finding, personal study, professional improvement, development of the functions of the critic teacher, etc. The procedure may be either scheduled group meetings or individual conference. Credit, 2.

By arrangement.

Professors WELLES, PURVIS, HEALD.

184. SECONDARY EDUCATION.—The course gives attention to the aims, relations, organizations, and functions of the high school and the activities that carry these out through curricula, schedules and extra-curricular organizations. Credit, 2.

By arrangement.

Assistant Professor PURVIS.

191. EDUCATIONAL RESEARCH AND STATISTICS.—The principles and methods of research with special emphasis upon the technique used in education and psychology. Statistics are studied chiefly from the standpoint of reporting and understanding the results of research. Required in first semester of students who anticipate completion of a thesis in the current year. Credit, 2.

Assistant Professor PURVIS.

200. THESIS.—A completed piece of work on an accepted educational problem with necessary review of literature in its field. Required of all students for the advanced degree. (Prerequisite 191.) Credit, 8.

By arrangement.

Professor WELLES.

Assistant Professor PURVIS.

Psychology.

151. EXPERIMENTAL PSYCHOLOGY.—A survey of important experiments in psychology. Special attention is given to the techniques of experimentation and to the apparatus employed. The content of the course is determined partly by the interests of the members of the class.

Credit, 2.

Assistant Professor NEET.

152. PHYSIOLOGICAL PSYCHOLOGY.—This is a study of the physiological correlates of normal and abnormal mental conditions and behavior. Special reference is given to sensory, motor and association processes.

Credit, 2.

Assistant Professor NEET.

153. SURVEY OF PSYCHOLOGY.—A survey of the present status of the fields, schools, and major problems of psychology. The principal methods of psychological research are outlined. Credit, 2.

Assistant Professor NEET.

154. EDUCATIONAL PSYCHOLOGY.—This course deals with the psychological theories involved in the solution of various educational problems. An attempt is made to criticize and evaluate educational theory and practice in this light. Credit, 2.

By arrangement.

Professor GLICK.

164. SEMINAR IN PSYCHOLOGY.—Arranged to include phases of psychology not covered in the outlined courses and also to provide opportunity for greater specialization than the outlined courses may afford.

Credit, 2.

By arrangement.

Professor GLICK and Assistant Professor NEET.

180. INDUSTRIAL AND BUSINESS PSYCHOLOGY.—The course aims to develop an understanding of the principles and techniques involved in employment, in personal problems, and in the treatment of problems of work, fatigue, and motivation. The psychology of advertising and selling will also be considered. Credit, 2.

Assistant Professor NEET.

185. ABNORMAL PSYCHOLOGY AND MENTAL HYGIENE.—A study of the different types of disorders in human behavior relative to causes, classification, prevention, and treatment. A critical study is made of the various theories and practices of mental hygiene. Credit, 2.

Assistant Professor NEET.

186. CHILD PSYCHOLOGY.—A study of child and adolescent behavior with special reference to the problems of teachers and parents.

Credit, 2.

Assistant Professor NEET.

187. APPLIED PSYCHOLOGY.—This is a study of the application of psy-

chological principles to various phases of life. Some of the topics considered are personality, development of the emotions, interests, attitudes, social behavior, and legal psychology. Various procedures used in clinical psychology will be considered. Credit, 2.

Assistant Professor NEET.

189. PSYCHOLOGY OF GUIDANCE.—A study of the various factors involved in guidance programs in general. Interests, attitudes, and general personality tests are studied and the psychological devices for measuring these are also considered and applied. Practice is given in administering and scoring tests, and statistical devices are used to interpret results. Credit, 3.

Professor GLICK.

193. THEORY OF MENTAL TESTS.—A critical study of the various types of tests from the psychological, philosophical, and practical points of view. Credit, 2.

By arrangement.

Professor GLICK.

195. PROBLEMS IN PSYCHOLOGY.—Affords an opportunity for study in any special field of psychology. Credit, 2.

Professor GLICK and Assistant Professor NEET.

200. THESIS.—In psychology. Credit, 10.

Professor GLICK and Assistant Professor NEET.

Philosophy.

161. HISTORY OF PHILOSOPHY.—A study of the development of Western thought in general from the time of the early Greeks up to the recent past. Credit, 2.

Professor GLICK.

162. FUNDAMENTALS OF PHILOSOPHY.—A study of the various current types of philosophy with emphasis upon evaluation and criticism. Credit, 2.

Professor GLICK.

163. PHILOSOPHY OF EDUCATION.—A criticism and evaluation of the various theories and practices in education viewed in the light of historical perspective and present-day science and theory. Credit, 2.

By arrangement.

Professor GLICK.

164. ETHICS.—A critical study of the fundamental ethical theories and practices both of the past and present, with an attempt to evaluate each in the light of present knowledge and social demands. Credit, 2.

Professor GLICK.

197. SEMINAR IN PHILOSOPHY.—Arranged to include phases of philosophy not covered in the outlined courses and also to provide opportunity for greater specialization than the outlined courses may afford. Credit, 2.

By arrangement.

Professor GLICK.

198. PROBLEMS IN PHILOSOPHY.—The subject matter centers around logic and deals primarily with various methods of investigating truth. Credit, 2.

Professor GLICK.

Entomology and Zoology.

COURSES FOR MAJOR OR MINOR CREDIT.

Entomology.

The credits for the courses listed range in number from 1 to 4.

101. Insect embryology; polyembryony; parthenogenesis, paedogenesis, heterogeny. Mr. SHAW.

102. Advanced insect morphology.
Professor CRAMPTON.

103. Ancestry and development of insects, including fossil forms.
Professor CRAMPTON.

104. Insect histology. Mr. SHAW.

105. Animal luminosity; chemistry and physics of insect colors.
Assistant Professor SWEETMAN.

106. Variation in insects; dimorphism and polymorphism; teratology, hermaphroditism and gynandromorphism; hybrids.
Professor ALEXANDER.

107. Advanced insect physiology.
Assistant Professor SWEETMAN.

110. Mimicry; relation of insects to plant pollination; insect behavior.
Professor CRAMPTON.

111. Insect architecture; insect products of value to man.
Professor CRAMPTON.

112. Geographic distribution of animals, with particular reference to insects; insect migrations.
Professor ALEXANDER.

113. Advanced biological control of insects and weeds.
Assistant Professor SWEETMAN.

114. Advanced animal ecology.
Assistant Professor SWEETMAN.

115. Chemical, cultural, and mechanical control of insects.
Assistant Professor SWEETMAN.

116. Insect photography and methods of preparing illustrations.
Assistant Professor SWEETMAN.

117. Field and laboratory methods in entomological research.
Assistant Professor SWEETMAN.

118. Legislation regarding insects and insecticides.
Assistant Professor SWEETMAN.

125. History of entomology and classifications.
Professor CRAMPTON.

126. Lives and works of prominent entomologists.
Professor ALEXANDER.

127. Abundance of insects; important public and private collections.
Professor ALEXANDER.

128. Type categories; genotypes, types of species; leading specialists in the various orders of insects.
Professor ALEXANDER.

129. The international code of zoological nomenclature and the opinions delivered thereon.
Professor ALEXANDER.

140. COCCIDOLOGY.—A study of the scale insects, their structure; habits; technique of mounting; identification; control.
2 2-hour laboratory periods. Credit, 2.
Professor CRAMPTON.

141. CLASSIFICATION OF MINOR ORDERS OF INSECTS.—Taxonomy of groups belonging to the smaller orders.
1 2-hour laboratory period. Credit, 1.
Professor ALEXANDER.

180. SEMINAR.—Reports on the current literature of entomology; special reports by resident and visiting speakers. Held in conjunction with the regular monthly meetings of the Fernald Entomological Club.

200. THESIS.—Original work on one or more topics in insect morphology, ecology, systematic entomology, or in the fields of medical entomology insect physiology, insecticides, biological control or apiculture. The thesis requires from one-half to two-thirds of the total working time of the student in his major field.

COURSES FOR MINOR CREDIT ONLY.

53, 80.	APPLIED ENTOMOLOGY.	Credit, 6.
55, 56.	INSECT TAXONOMY.	Credit, 6.
57.	INSECT MORPHOLOGY.	Credit, 4.
66, 85.	APICULTURE.	Credit, 6.
72.	FOREST ENTOMOLOGY.	Credit, 3.
74.	MEDICAL ENTOMOLOGY.	Credit, 2.
79.	INSECT ECOLOGY.	Credit, 3.
81.	INSECT PHYSIOLOGY.	Credit, 3.
87, 88.	SPECIAL PROBLEMS.	Credit, 1-3.

COURSES FOR MAJOR OR MINOR CREDIT.

Zoology.

100. ADVANCED INVERTEBRATE ZOOLOGY.—Types of invertebrates commonly found in ponds, streams, and bogs; life history of studies, rearing of immature stages, special problems. One collecting trip per week. Prerequisites, Zoology 69 and 70 or equivalent. Credit, 3.

Miss TRAVER.

105. THE PHYLOGENY AND MORPHOLOGY OF ARTHROPODS OTHER THAN INSECTS.—Especial attention is given to the grouping or Arthropods on the basis of morphological characters that are of taxonomic importance. This work is supplemented by assigned reading in literature dealing with the subject. Credit, 3.

Professor CRAMPTON.

114. ADVANCED ANIMAL ECOLOGY.—An advanced course dealing with the fundamentals of environments. Detailed field studies of the biotic and physical conditions of various environments are given. Ordinarily offered in Fall Semester only. Credit, 2. or more

Assistant Professor SWEETMAN.

120. EXPERIMENTAL EMBRYOLOGY.—Lectures, seminar reports and laboratory work dealing with the chief factors in the mechanics and physiology of development: The germ cells; fertilization, establishment of the primary axis; embryonic induction, and differentiation. Prerequisites, Zoology 75 and 76 or equivalent. Credit, 3.

Assistant Professor WOODSIDE.

130. APPLIED AQUATIC BIOLOGY.—Stresses the application of biological principles to the management of fishes. The principles of biological analysis, estimation of the biological potential, seasonal changes with concurrent phenomena, and methods for managing populations of animals in accord with these factors are studied. Enrollment by permission of instructor. Credit, 3.

Assistant Professor MACCOY.

140. NATURAL HISTORY METHODS.—A survey of modern practices in the field. This will involve a study of visual education, trailside museums, nature trails, and exhibitions of natural products. The making of lantern slides, charts, displays, and the working out of specific problems will be arranged according to individual needs. Hours by arrangement. Credit, 3.

Professor VINAL

150. SPECIAL PROBLEMS. Credit, Variable.

THE DEPARTMENT.

155. SEMINAR. Credit, 1.

THE DEPARTMENT.

200. THESIS. Credit, Variable.

THE DEPARTMENT.

COURSES FOR MINOR CREDIT ONLY.

65, 66. COMPARATIVE VERTEBRATE ZOOLOGY. Credit, 3 each semester.

69, 70. COMPARATIVE INVERTEBRATE ZOOLOGY. Credit, 3 each semester.
75, 76. VERTEBRATE EMBRYOLOGY. Credit, 3 each semester.
80. ORNITHOLOGY. Credit, 3.

Floriculture.

COURSES FOR MAJOR OR MINOR CREDIT.

A definitely outlined major or minor in floriculture is not catalogued at present but such a course may be arranged for individual students. The nature of the work to be taken up will depend upon the previous training and the type of problem desired by the candidate. Application should be made to the head of the department.

126. GARDEN MATERIALS.—Studies of specific plants or groups of plants which are used in gardening work. Questions concerning nursery methods of handling such plants are also included. Credit, 3.

150. CURRENT LITERATURE.—A review of scientific literature relating to floricultural practices, including various phases of greenhouse management, soils, fertilizers, plant propagation, insect pest and disease control, and other pertinent subjects. Credit, 3.

175. COMMERCIAL FLORICULTURE.—Problems relating to factors concerned with the commercial production of flowers and plants under glass. Opportunity is also given for study of factors concerned with methods of distribution. Credit, 3.

179. CONSERVATORY PLANTS.—A consideration of subjects dealing with plant materials which are used primarily in conservatories for display purposes and in gardens in warmer climates. Credit, 3.

190. HISTORY OF FLORICULTURE AND FLORICULTURAL LITERATURE.—Consideration of men and events that have influenced the development of floriculture. Brief survey of floricultural literature. Required of all graduates in floriculture. Credit, 3.

200. THESIS.—For candidates taking major work in floriculture. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

51. GREENHOUSE MANAGEMENT. Credit, 3.
52. FLORAL ARRANGEMENT. Credit, 3.
75. COMMERCIAL FLORICULTURE. Credit, 3 each semester.
79. CONSERVATORY PLANTS (1940-41). Credit, 2.
81. HERBACEOUS GARDENS AND BORDERS (1941-42). Credit, 3.
82. SEMINAR. Credit, 3.

Food Technology.

Opportunity for advanced study in food technology is provided in order that qualified students may better prepare themselves to serve the numerous industrial interests engaged in providing the consuming public with a more desirable food supply. The plan for study arranged for this major while intended to be flexible requires the student to confine himself largely to the graduate courses offered in the following fields: Bacteriology, Chemistry, Dairy Industry, Horticultural Manufactures, and Human Nutrition. These courses, if properly selected, will satisfy both major and minor requirements. The proportionate contribution of each department will depend upon the student's special interests within the field but a minimum of six credits must be earned in each of the departments contributing to this major. Candidates for a degree in this major are assigned to an Advisory Committee composed of representatives of the departments concerned with the Director of the Graduate School as Chairman. This Committee will direct the student's program in the

hope that a procedure may be arranged that will provide most adequate facilities for the expression of individuality. The general requirements for a degree in food technology conform to those specified for the doctor of philosophy degree as provided by several departments except that this major offers a wider range of subject matter. Students interested should consult the Director of the Graduate School.

Forestry and Wildlife Management.

COURSES FOR MINOR CREDIT ONLY.

Wildlife Management.

65. PRINCIPLES OF WILDLIFE CONSERVATION. Credit, 3.

69. HISTORY AND ECOLOGY OF WILDLIFE.—A quantitative study of the life histories and natural habitats of wild animals. Credit, 3.

70. ADMINISTRATIVE PROBLEMS OF WILDLIFE.—The relationships of wild animals to economic land use and the measures used in the administration of wildlife resources. May include field surveys. Credit, 3.

Forestry.

COURSES FOR MINOR CREDIT ONLY.

55. FOREST MENSURATION. Credit, 3.

56. PRINCIPLES OF SILVICULTURE. Credit, 3.

58. FOREST ECONOMICS AND POLICY. Credit, 3.

59. FOREST ECONOMICS.—The use of land for forest purposes in New England with special reference to the recreational and esthetic aspects of such use. Individual problems with conferences and assigned readings. Credit, 3.

60. FOREST MANAGEMENT.—A study of the small unit forest in New England with special reference to the determination of the volume and value of the growing stock and its proper utilization. Individual problems with conferences and assigned readings. Credit, 3.

61. FOREST IMPROVEMENT.—A study of the intermediate cuttings and other practical silvicultural methods applicable in the improvement and renovation of New England forest stands. Field work, conferences and assigned readings. Credit, 3.

75. FOREST UTILIZATION.—A study of the uses of wood with special reference to the tree species of New England. Emphasis will be placed on individual field work and library research in the manufacture, merchandising, and distribution of forest products. Credit, 3.

Geology.

COURSES FOR MINOR CREDIT ONLY.

51. MINERALOGY. Credit, 3.

52. PETROLOGY. Credit, 3.

61, 62. HISTORICAL GEOLOGY. Credit, 3.

101, 102. SPECIAL PROBLEMS. Credit, 3.

History and Sociology.

History.

COURSES FOR MAJOR OR MINOR CREDIT.

161. ANCIENT CIVILIZATIONS.—Given in alternate years. 1941-42. The ancient Near East and Greece. Credit, 3.
Professor MACKIMMIE.

163. ANCIENT ROMAN HISTORY.—Given in alternate years. 1939-40. Credit, 3.
Professor MACKIMMIE.

165. NINETEENTH CENTURY ENGLAND.—Victorian society and ideals;

Industrial Revolution and its effects; growth of democracy. Emphasis on social conditions and thought movements. Given in alternate years. 1941-42.
Prerequisite, History 32 or 54. Credit, 3.
Assistant Professor CALDWELL.

167. STUART ENGLAND.—The development of limited monarchy is treated, but particular emphasis is placed on social, religious, and intellectual aspects of English life in the period. Wide reading in contemporary sources. Given in alternate years, 1939-40.
Prerequisite, History 32 or 54. Credit, 3.
Assistant Professor CALDWELL.

169. EUROPE 1870-1914.—Internal developments of the principal countries, including political and economic changes, social unrest, and intellectual currents; the development of imperialism; a detailed study of conditions and diplomacy which led to the World War. Credit, 3.
Assistant Professor CALDWELL.

170. EUROPE SINCE 1914.—A continuation of History 169, but may be elected independently. The World War and post-war developments in the various countries. Emphasis on international relations. Credit, 3.
Assistant Professor CALDWELL.

171. HISTORY OF AMERICAN FOREIGN POLICY.—A survey of major problems and policies in American foreign relations.
Prerequisites, History 59 and 60 or equivalent. Credit, 2.
Assistant Professor CARY.

175. MEDIEVAL EUROPE.—Europe from the barbarian invasions to the Renaissance. Social and economic conditions, development of national monarchies, the Church and religion, medieval culture. Credit, 3.
Assistant Professor CARY.

176. THE HISTORY OF THE RENAISSANCE.—The later Middle Ages. The Church at the height of power. The rise of nationalities. The Italian towns. The New Learning and its relation to Art, Science, Invention, Geographical Discoveries. Spread and effects of the Renaissance.
Credit, 3.
Professor MACKIMMIE.

182. PROBLEMS IN AMERICAN HISTORY.—A course for those who wish advanced work. Selected problems will be investigated through the study of source material and extensive reading in secondary literature.
Credit, 3.
Assistant Professor CARY.

200. THESIS.—A thesis based on accepted standards of research and interpretation. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

52. GOVERNMENT.—Forms and methods of governments of Europe; historic types and theories of government; progress and problems of democracy, and new reform movements in organization and administration; new tendencies towards social legislation and extension of governmental control. Credit, 3.
Professor MACKIMMIE.

59. HISTORY OF THE UNITED STATES 1763-1865.—Emphasis on westward expansion, social and economic change as factors influencing political development. Credit, 3.
Assistant Professor CARY.

60. HISTORY OF THE UNITED STATES SINCE 1865.—Continuation of History 59. Credit, 3.
Assistant Professor CARY.

Sociology.

COURSES FOR MAJOR OR MINOR CREDIT.

153. ANTHROPOLOGY AND CULTURE.—A study of prehistoric human life and culture. Credit, 3.

Assistant Professor CUTLER.

154. CIVILIZATION AND CULTURE.—A study of human social and cultural development, including agricultural, with reference to the sources of our knowledge; attention is given to the results of recent scholarship in this field. Credit, 3.

Assistant Professor CUTLER.

175. SOCIAL REFORMS.—An appraisal of present-day efforts to adjust our social conditions, in country and city, to the situation created by the industrial revolution; a study is made of recent literature on this subject; social case work defined. Credit, 3.

Assistant Professor CUTLER.

177. SOCIOLOGICAL FIELD WORK.—Students, under direction of the instructor, analyze and organize such sociological knowledge as they acquire through their own social service experience, and include all in a comprehensive report; projects must be approved in advance by the instructor; methods of research are studied. Credit, 3.

Assistant Professor CUTLER.

179. SEMINAR.—Graduate students render reports on research in which they engage, and upon selected portions of current sociological literature. The reports serve as the basis for general discussion. Credit, 2.

Assistant Professor CUTLER.

182. AMERICAN STANDARDS OF LIVING.—A study of the relations of life to people's indeals and income. Credit, 3.

Assistant Professor CUTLER.

183. SOCIAL CONDITIONS OF OLD WORLD LIFE.—A sociological investigation of life in Europe, the Orient, and the Far East; co-operative enterprise in Denmark; agriculture in China after one hundred twenty generations; racial traits. Credit, 3.

Assistant Professor CUTLER.

187. TOWN AND VILLAGE LIFE.— The agricultural village; the small town in relationship to its environing neighborhoods; rurbanization; part-time farming. Credit, 3.

Assistant Professor CUTLER.

188. THE MODERN CITY.—A survey of industrial and mercantile centers with their problems of poverty, health and sanitation, planning and zoning, the "unearned increment," and disrupted primary groups; the social, administrative and economic organization of cities; metropolitan planning. Credit, 3.

Assistant Professor CUTLER.

189. UTOPIAS AND OTHER SOCIAL MOVEMENTS.—A study of utopias in literature and in fact; the literature of rural life; contemporary social movements. Credit, 3.

Assistant Professor CUTLER.

190. LOCAL GOVERNMENT.—Proposed improvements in local government. Credit, 3.

Assistant Professor CUTLER.

191. COMMUNITY LEADERSHIP.—Qualities and methods making for successful leadership. Credit, 3.

Assistant Professor CUTLER.

192. SOCIAL CONDITIONS IN THE CARIBBEAN REGION.—A sociological study of life and industry in the American possessions and protectorates;

relation of the West Indies to the United States; the peon mind.
Credit, 3.
Assistant Professor CUTLER.

193. THE LEAGUE OF NATIONS.— Social and agricultural problems in their international aspects. Credit, 3.
Assistant Professor CUTLER.

200. THESIS. Credit, 10.

Home Economics.

COURSES FOR MAJOR OR MINOR CREDIT.

101. PROBLEMS IN NUTRITION.—Adapted to meet the interests and needs of individual students. These studies might include an application of the principles of chemistry, psychology and physiology to nutrition; child nutrition, dietotherapy, nutrition in relation to health education. Credit, 3.

104. ADVANCED NUTRITION.—A study of nutrition from both the chemical and physiological aspects with emphasis on the metabolism of proteins and related compounds, lipoids, carbohydrates, minerals, and vitamins. Recent advances in each field of nutrition research are discussed. This course is available to graduate students majoring in related fields as well as to majors in Nutrition provided they offer the necessary prerequisites. Prerequisites, Chemistry 79; Physiology 32. Credit, 3.

111. NUTRITION SEMINAR.—A review of current literature on selected subjects and the preparation of bibliographies and special reports by the students. Credit, 1 each semester.

200. THESIS.—Individual research in the field of nutrition and the preparation of an acceptable thesis reporting results and analysis of such studies. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

75. ECONOMICS OF THE HOUSEHOLD.—A study of personal and family standards of living in the modern home, the economic relations of the household, and the use of time, energy and money as a means to influence the home situation. Credit, 3.

83. PROBLEMS IN HOME ECONOMICS.—An application of home economics to special problems. Credit, 3 each semester.

86. CHILD DEVELOPMENT.—A study of the growth and development of the child, the care of children at various ages, treatment in behavior problems, and the influence of environment in shaping personality.
Credit, 3.

87. ADVANCED CLOTHING PROBLEMS.—A study of advanced clothing problems with special emphasis on economic problems involved. Costume designing and modeling are included which give opportunity for experimentation in designing. Credit, 3.

89. DIET THERAPY.—This course offers a brief outline of the causes, symptoms, and general treatment of the various diseases in which the nutritional condition of the patient has significance. The course includes the dietetic treatment and control of gastrointestinal disorders, obesity, cardio-vascular-renal diseases, anemia, fevers, diabetes, food allergy and the deficiency diseases. Field trips are planned to the dietetic departments of nearby hospitals.
3 class hours. Credit, 3.
Prerequisites, Home Economics 52; Chemistry 79; Physiology 32.

91. INSTITUTIONAL FOODS AND MANAGEMENT.—This includes a study of the principles of organization, personnel management, the administration of the food department, food costs, operating expenses, and the special function and duties of the dietitian. Laboratory work will be at the College Dining Hall and in various other institutions in the vicinity.

It is expected that students will enroll for the work of both semesters. Enrollment limited.
1 class hour; 2 2-hour laboratory periods. Credit, 3.

Horticultural Manufactures.

COURSES FOR MAJOR OR MINOR CREDIT.

101-102. FOOD INDUSTRY PROBLEMS.—A series of problems, exercises and assignments covering a wide variety of subjects. Definite credit assigned to each problem. Credit, 2-6.

161. COMMERCIAL PRACTICES.—Advanced laboratory work in the manufacture of canned meats, marine products, vegetables, soups, pickled products, maple and table syrups, fountain syrups and carbonated beverages. One lecture, two 2-hour laboratory periods. Credit, 3.

162. COMMERCIAL PRACTICES.—Advanced laboratory work and lectures on such manufactured food products as jellies, jams, marmalade, pectin, juices and by-products. A study of chemical preservatives in foods. Food laws. Fermented foods and beverages. Refrigeration, freezing, drying and smoking as applied to food preservation and storage. Inspection of plants. One lecture and two two-hour laboratory periods. Credit, 3.

171. SEMINAR.—Literature assignments, preparation of reports, and roundtable discussions, special lectures. Credit, 1-2.

182. CONFECTIONS AND SPECIAL PRODUCTS.—Candied and glaced fruits, and preserves; candies, sugars and accessory preserving materials.
Two 2-hour laboratory periods. Credit, 2.

191. EXAMINATION OF FOOD PRODUCTS.—Factory and laboratory methods. Grades and quality factors; physical, chemical, microbiological and microscopical methods and interpretation of results. Government and trade standards. Two 2-hour laboratory periods. Credit, 2.

200. THESIS.—Research on some suitable topic relating to the technology of foods. Facilities for nutrition research are provided by well-equipped chemical and small animal laboratories. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

51. FRUIT AND VEGETABLE PRODUCTS.—This course, together with 52, gives the student a general elementary knowledge of the science and practice of food manufacture. Principles and theories of the various methods of food preservation are the basis for classroom exercises. The laboratory work during the first semester deals largely with the preservation of the autumn fruits and vegetables, small fruit products, freezing and dehydration.
1 class hour; 2 2-hour laboratory periods. Credit, 3.

52. MISCELLANEOUS PRODUCTS.—This is a continuation of 51. The laboratory work includes pickles and pickle products, maple products, citrus products, fruit syrups, soups, condiments and the canning of meats, poultry, and the spring vegetables.
1 class hour; 2 2-hour laboratory periods. Credit, 3.

61. COMMERCIAL PRACTICES.—A survey of commercial practices in the manufacture and preservation of food products. This will involve a study of equipment, factory arrangement, sanitation and government regulations, the operation of types of commercial equipment in quantity production.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Prerequisites Horticultural Manufactures 51 and 52.

62. FOOD PRESERVATION PROBLEMS.—This is a continuation of 61. The class exercises will deal largely with a survey study of the sources of raw materials, commercial methods of manufacture, packing and dis-

tribution of the more common foods, also a study of the more important contributions of research. Laboratory work will include the formation of research projects, interpretation of research data. The use of preservatives, the simple analysis of foods and the commercial practices as applied to preservation of such materials as are available: fish, meats, poultry, and spring vegetables.
1 class hour; 2 2-hour laboratory periods. Credit, 3.
Prerequisite Horticultural Manufactures 61.

75. FOOD PRESERVATION.—For seniors and graduate students. Not open to students who have credit for Horticultural Manufactures 51, 52, or 81. This is a general course in food preservation and is intended only for those who desire a survey of the field in a condensed form. Two 2-hour laboratory periods, 1 class hour. Credit, 3.

Landscape Architecture.

COURSES FOR MAJOR OR MINOR CREDIT.

175. ART APPRECIATION. Credit, 3.
Professor OTTO.

176. CIVIC ART.—Studies in problems in civic art, including city planning, country planning and subdivision, public policies, and administration in park and forest recreation, and landscape conservation. Credit, 3.
Professor OTTO.

178. HISTORY OF ART. Credit, 3.
Professor ROBERTSON.

179. CONSTRUCTION AND MAINTENANCE. Credit, 3.
Professor HARRISON.

181. ADVANCED DESIGN. Credit, 3.
Professor OTTO.

182. ADVANCED DESIGN. Credit, 3.
Professor HARRISON.

183. HISTORY OF ARCHITECTURE. Credit, 3.
Professor HARRISON.

190. THEORY.—Special studies in the history and theory of art and of landscape architecture. Credit, 3.
THE DEPARTMENT.

191. DESIGN.—Individual problems in any or all branches of design, including estates, parks, playgrounds, public grounds, etc. Credit, 3.
THE DEPARTMENT.

192. CONSTRUCTION.—Individual problems by arrangement, including engineering, estimating, cost accounting, and methods of construction. Credit, 3.
THE DEPARTMENT.

194. PRACTICE.—Professional field work under supervision, conducted upon going projects as opportunity offers. Credit, 3.
By Arrangement.
THE DEPARTMENT.

195. PHYSIOGRAPHY.—Field trips and problems. Credit, 1.
Professor WAUGH.

196. PRESENTATION.—Studies in drafting, pen and crayon, rendering, water coloring, etc. Credit, 3
Professor ROBERTSON.

197. ARCHITECTURE.—Problems in architecture. Credit, 3.
Professor ROBERTSON.

200. THESIS. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

51. MAPPING AND TOPOGRAPHY. Credit, 3.
Professor HARRISON.

52. ELEMENTS OF LANDSCAPE ARCHITECTURE.—Engineering details, grades, roads, drainage. Credit, 3.
Professor HARRISON.

54. GARDEN DESIGN.—Elementary principles of structural design as applied to the simpler garden forms. Credit, 3.
Professor OTTO.

FOR THE DEGREE OF BACHELOR OF LANDSCAPE ARCHITECTURE.

To receive the degree of Bachelor of Landscape Architecture each candidate will be required:

1. To have received the degree of Bachelor of Science or Bachelor of Arts from a reputable institution.
2. To have completed as a prerequisite 24 semester credits in technical courses in landscape architecture, substantially equivalent to the technical courses now required in the major in landscape architecture at this college.
3. In addition, to have completed in residence at this institution 30 credits in landscape architecture and closely related subjects prescribed by the department. (See Fifth Year Program below.)
4. To have maintained a standing of 70 or better in all courses of the Fifth Year.
5. To be able to speak and write good English.
6. To have received the unanimous approval of the faculty of the department and the usual vote of approval of the faculty of the Graduate School.

FIFTH YEAR PROGRAM.

The regular program of studies for the Fifth Year, subject to minor changes, is as follows:

First Semester.

LANDSCAPE ARCHITECTURE 101. General Design. THE DEPARTMENT.
LANDSCAPE ARCHITECTURE 103. Ecology. Professor BLUNDELL.
LANDSCAPE ARCHITECTURE 107. Specifications, Estimates, Costs.
Professor HARRISON.
LANDSCAPE ARCHITECTURE 109. Landscape Sketching. (Elective)
Professor ROBERTSON.
ARCHITECTURE 101. Elementary Problems. Professor ROBERTSON.
ENGLISH or other suitable subject. Assigned.

Second Semester.

LANDSCAPE ARCHITECTURE 102. General Design. THE DEPARTMENT.
LANDSCAPE ARCHITECTURE 106. Landscape Forestry.
Professor HOLDSWORTH.
LANDSCAPE ARCHITECTURE 110. Architectural Sketching. (Elective)
Professor ROBERTSON.
LANDSCAPE ARCHITECTURE 112. Professional Practice. Professor OTTO.
ARCHITECTURE 102. Structural Problems. Professor ROBERTSON.
ENGLISH or other suitable subject. Assigned.

Note: Each course in this group is rated at 3 semester credits with the exception of Course 112. (1-credit). Minor deviations from this program may be made at the discretion of the department.

Languages and Literature.

Any of the following courses as described and listed by number in the general College Catalogue may be selected to contribute to the require-

ments for a minor under any major where offerings in the Department of Languages and Literature are approved for a minor:

ENGLISH.—All courses from No. 50 to No. 83 inclusive.

GERMAN.—All courses from No. 27 to No. 82 inclusive.

FRENCH.—All courses from No. 29 to No. 80 inclusive.

Mathematics.

COURSES FOR MINOR CREDIT ONLY.

55. MATHEMATICS OF FINANCE.—The mathematical principle of simple and compound interest, annuities, depreciation, valuation of bonds, insurance, building and loan associations. The development and application of aids to computation in problems arising from financial transactions.
3 class hours. Credit, 3.
Prerequisite, Mathematics 1. Assistant Professor MILLER.

60. SPHERICAL TRIGONOMETRY AND SOLID ANALYTIC GEOMETRY.—The trigonometry of the sphere with applications to terrestrial and celestial problems. This is followed by a study of higher plane curves and the analytic representation of points, lines and surfaces in space.
3 class hours. Credit, 3.
Prerequisite, Math. 30. Associate Professor MOORE.

62. STATISTICS.—The fundamental mathematical principles of statistical analysis. A discussion of averages, measures of dispersion, frequency and probability functions, correlation, random sampling. This course in conjunction with Agricultural Economics 79 should provide the student with a good understanding of the application of statistical method and the interpretation of results.
3 class hours. Credit, 3.
Prerequisite, Mathematics 51. Assistant Professor MILLER.

66. INTRODUCTION TO HIGHER GEOMETRY.—(1939-40) A study of various methods employed in the modern treatment of the geometry of points, lines, and conics. Such topics as homogeneous point and line coordinates; infinite elements; harmonic division; groups of transformations and their invariants; and the elements of projective and other geometries, will be considered. Given in alternate years.
3 class hours. Credit, 3.
Prerequisite, Math. 1 and 2. Assistant Professor ANDERSON.

71. VECTOR ANALYSIS.—(1940-41) The algebra and calculus of vectors. Applications to physics and other fields will be considered. Given in alternate years.
3 class hours. Credit, 3.
Prerequisites, Math. 30; Physics 26.

91, 92. ADVANCED CALCULUS AND DIFFERENTIAL EQUATIONS.—A course devoted to the topics of the calculus more advanced than those encountered in Mathematics 29 and 30 such as series, expansion of functions, envelopes, partial differentiation, and multiple integrals. This work is followed by a study of differential equations, a subject which dominates the field of applied mathematics.
3 class hours. Credit, 3.
Prerequisite, Math. 30.
Associate Professor MOORE and Assistant Professor ANDERSON.

Olericulture.

COURSES FOR MAJOR AND MINOR CREDIT.

150. CURRENT LITERATURE.—A review of scientific papers relating to research work in Olericulture as affecting various cultural practices both in the greenhouse and in the field. Credit, 3.

151. NUTRITION OF VEGETABLE CROPS.—Readings, laboratory and

greenhouse work related to problems of soil management and fertilization practices. Credit, 3.

152. CULTURAL PROBLEMS.—A study of fundamental factors such as soil moisture, light, humidity and temperature as they influence cultural practices. Credit, 3.

175. ADVANCED SYSTEMATIC OLERICULTURE.—A critical study of vegetable types as to nomenclature, identification, and classification. Credit, 3.

181. SEMINAR.—A study of research work related to Olericulture. Each student will be required to present papers on assigned readings. Credit, 1.

200. THESIS.—Research on some suitable topic relating to a specific phase of Olericulture. Credit, 10.

COURSES FOR MINOR CREDIT ONLY.

25. GENERAL OLERICULTURE. Credit, 3.
51. PRINCIPLES OF OLERICULTURE. Credit, 3 each semester.
75. SYSTEMATIC OLERICULTURE. Credit, 3.
76. GREENHOUSE CROPS. Credit, 3.
78. COMMERCIAL OLERICULTURE. Credit, 3.

Physical Education.

COURSES FOR MINOR CREDIT ONLY.

MEN.

55. HISTORY AND PURPOSES OF PHYSICAL EDUCATION.—A study of the history of the development of the various systems of physical education and of the aims and ideals of present-day physical educators. Credit, 2.
Professor GORE.

56. ORGANIZATION AND ADMINISTRATION.—Considers the organization and administrations of a department of physical education. Credit, 2.
Professor HICKS.

71, 72. SPECIAL PROBLEMS COURSE IN PHYSICAL EDUCATION.—Presentation and discussion of research work in physical education, health education, and athletics. Credits, 3 each semester.
Professor GORE and THE DEPARTMENT.

73. RECREATION: ADMINISTRATION AND ORGANIZATION—Administration and Organization of Recreational Areas. Credit, 3.
Professor GORE.

74. RECREATION: RECREATION LAND USE.—Including types of recreational areas, recreational resources, recreational needs of the people, geography of recreation, economic aspects of recreational Federal, State, and Local systems. Credit, 3.
Professor GORE.

77. ANATOMY GENERAL.—A course in structural anatomy, including bones, ligaments, muscles, circulation, digestion, nervous system and respiration. Credit, 3.
Professor RADCLIFFE.

78. ANATOMY APPLIED.—A course in applied anatomy or kinesiology aimed to give the anatomical knowledge and application basal to a thorough understanding of the mechanical problems in apparatus, athletic and corrective exercises. Credit, 3.
Professor RADCLIFFE.

Physics.

COURSES FOR MINOR CREDIT ONLY.

51, 52. ELECTRICITY.—Course 51 deals mainly with direct currents, Course 52 with alternating currents, applications of thermionics, and

photo-electricity. These courses are planned to give the student a good grounding in theory and methods of measurement. Modern procedures are stressed and instruments of precision are used.
2 class hours; 1 2-hour laboratory period. Credit, 3 each semester.
Professor POWERS.
Prerequisites, Physics 26 for Course 51; Physics 51 for Course 52, Math. 29.

53. HEAT AND THERMODYNAMICS.—A study of heat exchanges and energy changes due to heat in systems of matter. The subject material and experimental methods are useful in other branches of science.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor ALDERMAN.
Prerequisites, Physics 25 and 26, Math. 29.

54. OPTICS.—An intermediate course in the theory of light. Work in geometrical and physical optics is done. Precision instruments are used in the laboratory.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Assistant Professor ALDERMAN.
Prerequisites, Physics 26, Math. 29.

55. MECHANICS.—Development of the fundamental concepts of statics and dynamics with applications to particles and rigid bodies in translation and rotation. Credit, 3.
3 class hours (1 laboratory period may be substituted for 1 class hour).
Prerequisites, Physics 26, Math. 29. Mr. ROSS.

60. SOUND AND ACOUSTICS.—A study of vibrations, vibrating bodies, coupled systems, sound structure and acoustic properties. The work will include many applications of sound to technical and commercial fields.
Prerequisite, Physics 55 or equivalent. Credit, 3.
THE DEPARTMENT.

75, 76. ADVANCED EXPERIMENTAL WORK IN SELECTED TOPICS.—These courses are chiefly experimental, and the subject matter is adapted to the needs of the individual student. The research viewpoint is emphasized.
3 2-hour laboratory periods. Credit, 3 each semester.
Professor POWERS.
Prerequisites, Physics 25, 26, and 52; or 53 and 54; Math. 29 and 51.

85, 86. MODERN PHYSICS.—Typical subjects studied are theories of the atom, radiation, quantum theory, spectra, X-ray analysis.
3 class hours. Given at option of instructor. Credit, 3 each semester.
Professor POWERS.
Prerequisites, Physics 25, 26, 51-54; or equivalent; Math. 29, 51.

Pomology.

COURSES FOR MAJOR OR MINOR CREDIT ONLY.

101. EXPERIMENTAL METHODS.—A critical study of the methods of research that have been used or may be helpful in pomological work. The following topics will be considered from the point of view of the investigator in pomology:—

1. Statistical methods.
2. Measures of growth and yield.
3. The conduct of plot experiments.
4. Methods of soil study in their relation to pomological research.
5. Chemical methods of pomological research.
6. Methods of physiology applicable to fruit plants.

Credit, 10.

102. POMOLOGICAL RESEARCH.—A critical survey of past and current research work in pomology. Tri-weekly meetings for reports and discus-

sions will be held. The following topics will be taken up:—

1. Orchard soil management.
2. Soil fertility and fertilizers.
3. Physiology of pruning fruit plants.
4. Fruit bud differentiation.
5. Sterility and fertility.
6. Genetics of fruit plants.
7. Climatology and winter injury.
8. Special problems in propagation and nursery management.
9. Spraying machinery and equipment.
10. Special practices.

Credit, 10.

103. ADVANCED LABORATORY WORK.—Each student will be required to become familiar with the research work of the department and to have a share in it. So far as this has value as graduate work, he will receive credit. Credit, 5.

104. HISTORY OF POMOLOGY.—The men, institutions, and other influences that have contributed to the development of the science and art of pomology. Credit, 2.

106. ADVANCED SYSTEMATIC POMOLOGY.—The principles of systematic pomology, including a study of nut and subtropical fruits not usually dealt with in undergraduate courses. Opportunity is also offered for study of leaf and general tree characters of nursery and orchard trees and the relationship of varieties as indicated by these characters as well as those of the fruit. Credit, 5.

200. THESIS.—Each student will be required to carry out an original investigation of an assigned problem. In planning, executing and interpreting the data of this problem he must show marked ability. The results are embodied in a thesis to be passed upon by the Department and the Graduate Staff. Credit, 10-30.

COURSES FOR MINOR CREDIT ONLY.

POMOLOGY 26, SMALL FRUITS.—A study of the growing of small fruits, including raspberries, blackberries, strawberries, currants, blueberries, and grapes, dealing with such questions as varieties, selecting a site for the plantation, soils, fertilizers, pruning, harvesting, marketing, etc.
2 class hours; 1 2-hour laboratory period. Credit, 3.

POMOLOGY 53. GENERAL POMOLOGY.—A study of the most improved practices in fruit production, including such questions as the selection of orchard sites and soils, laying out and setting the orchard, the structure and growth of fruit plants; the bearing habits, pruning and training of fruits; fertilizers, pollination, winter injury, etc.
2 class hours; 1 2-hour laboratory period. Credit, 3.

POMOLOGY 56. SPRAYING.—(a) Spraying materials, their composition, manufacture, and preparation for use; the desirable and objectional qualities of each material; formulas used, costs, tests of purity. (b) Spraying machinery, including all the principal types of pumps, nozzles, hose and vehicles; their structure and care. (c) Orchard methods in the application of the various materials used, with the important considerations for spraying each fruit and for combating each orchard pest. This course is designed especially to familiarize the student with the practical details of actual spraying work in the orchard.
1 class hour; 2 2-hour laboratory periods. Credit, 3.

POMOLOGY 75. SYSTEMATIC POMOLOGY (1938-39).—A study of the more important kinds and varieties of fruits grown in the United States, their relationships and nomenclature. Particular emphasis is placed on the identification, classification and value of varieties including a study of the characters of the plant as well as the fruit. Given in alternate years.
1 class hour; 3 2-hour laboratory periods. Credit, 4.

POMOLOGY 77. COMMERCIAL POMOLOGY (1937-38).—The picking, handling, storing, and marketing of fruits, including a discussion of storage houses, fruit packages, and methods of refrigeration, grading and packing. This course also considers the leading American and foreign centers of fruit production as they affect our own fruit industry through competition here and abroad. Given in alternate years.
2 class hours; 1 2-hour laboratory period. Credit, 3.

POMOLOGY 81. ADVANCED POMOLOGY.—A consideration of the scientific principles governing the growth and behavior of fruit-bearing plants. Special attention is given to a critical survey of the more important research work in the field of Pomology.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Pomology 53.

POMOLOGY 82. ADVANCED POMOLOGY.—A continuation of Course 81.
2 class hours; 1 2-hour laboratory period. Credit, 3.
Prerequisite, Pomology 81.

POMOLOGY 83. SEMINAR.—Advanced study of problems relating to the business of fruit growing. Each student is assigned a major problem in lines of work in which he is particularly interested. He pursues his studies both by reading and research, and the materials obtained will be worked into theses, which are presented to the seminar for discussion. No lectures are given, but seminar meetings are held for one period each week.
1 class hour. Credit, 1 each semester.
THE DEPARTMENT.

Poultry Science.

COURSES FOR MAJOR OR MINOR CREDIT.

101. SCIENCE OF POULTRY HUSBANDRY.—A review of the entire field of poultry literature, including books, bulletins, journals and other technical publications to furnish a comprehensive background of the present status of knowledge in poultry science. Written reports will be required. Credit, 3.

102. POULTRY RESEARCH PROBLEMS.—A critical review of research, experimentation, and demonstration that has been carried out by workers at the various stations in this and other countries. A study of poultry problems in foreign countries together with the outstanding needs in the United States with a view to discovering the needs for fundamental research. Credit, 3.

103, 104. ADVANCED GENETICS.—A lecture course offered during both semesters dealing with the experimental study of genetics in relation to both plant and animal breeding. The course is open to qualified graduate students in any line of study. Credit, 3.

105. GENETICS AND EVOLUTION.—A series of lectures dealing with the genetics of evolution. The course is designed to follow Course 103-104 and to stress the relation of evolution to genetics. The course is open to all qualified graduate students. Credit, 3.

106. RESEARCH IN BREEDING.—Students may carry on definite experiments in poultry breeding. All research work will be confined to the field of pure and applied genetics. Problems concerned with both physical physiological characters may be studied. Credit, 5.

107. INTERPRETATION OF BREEDING DATA.—A complete analysis of available experimental data on various phases of poultry breeding is undertaken by the student. The student is required to make his own interpretations and to report the results of his analysis. Credit, 3.

108. INCUBATION AND EMBRYOLOGY.—A number of problems of a practical, scientific, and mechanical nature relating to incubation are con-

sidered. The work in embryology is of an advanced nature, dealing with its relation to morphogenesis and heredity, and presupposes an elementary knowledge of the embryology of the chick. Credit, 3.

109. BROODING.—Studies will be made upon the relation between viability and rate of growth and some of the following: type of brooder, number of chicks in brood, temperature, ventilation, humidity, sanitation, exercise, and weather conditions; or a comparison of natural methods with artificial methods of rearing chicks. Credit, 3.

111. FEEDING AND NUTRITION.—A study of the relation of various feeds to the physiology of the fowl. Special attention is given to the nutritive requirements and the effects of various nutrients on growth, egg production, hatchability, character of plumage, and condition of flesh. Complete rations as well as methods of feeding are fully considered. Credit, 5

200. THESIS.—Research work may be carried out in the following lines: breeding, nutrition, brooding and incubation, and embryology. Originality and thoroughness are particularly emphasized. Credit, 10-30.

COURSES OFFERED FOR MINOR CREDIT ONLY.

81, 82. POULTRY PROBLEMS.—Open to seniors and graduate students. The course consists of problems chosen by the students under the guidance of the department. Credit, 3.

Veterinary Science.

COURSES FOR MINOR CREDIT ONLY.

75. COMPARATIVE VETERINARY ANATOMY.—The structures of the horse, cow, sheep, and pig are studied.
3 lectures a week. Credit, 3.

76. GENERAL VETERINARY PATHOLOGY.—The principles of pathology and their application as related to diseases of domesticated animals are considered.
3 lectures a week. Credit, 3.

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